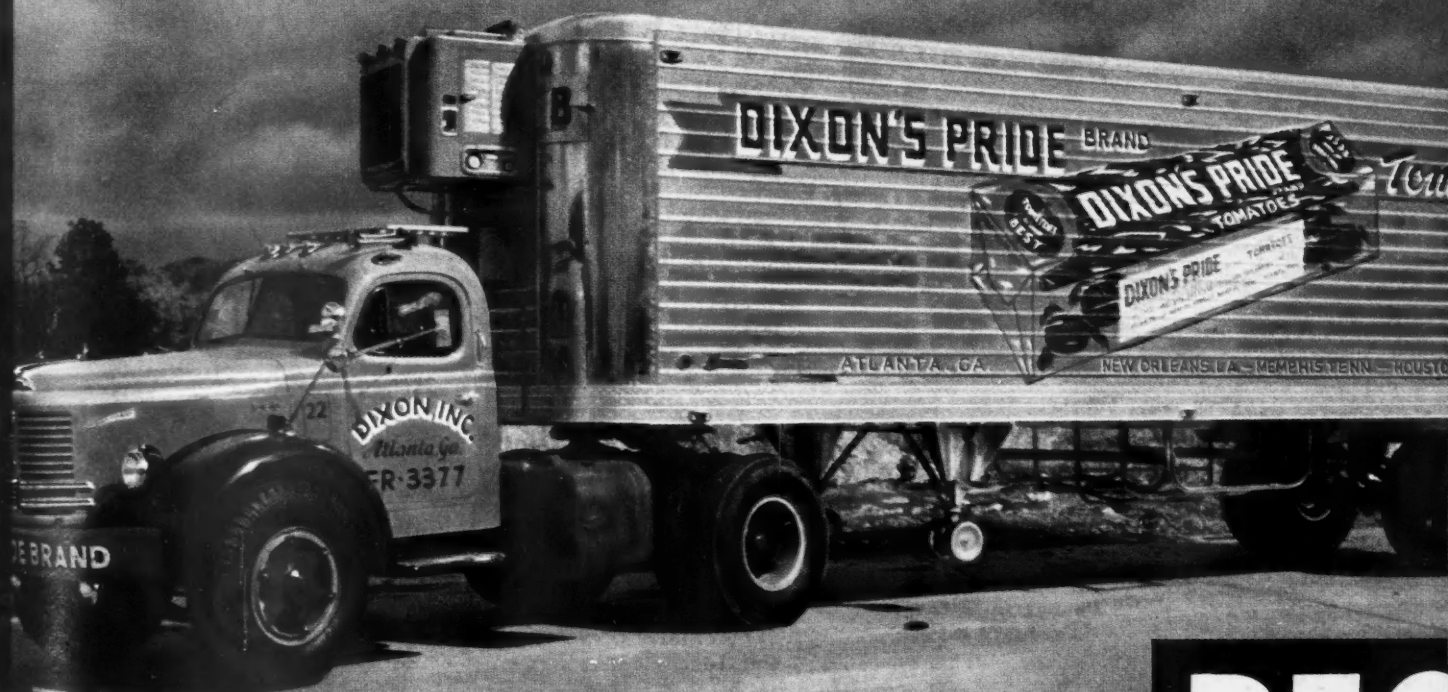


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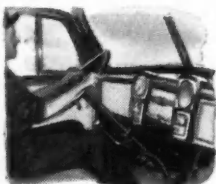
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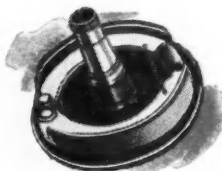


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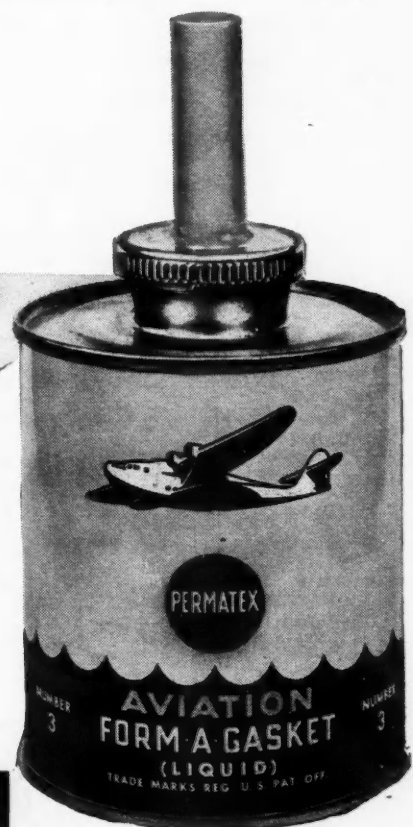
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# JOURNAL

## ccj READER DIGEST

### Legislative Outlook for 1951

This is expected to be a big year in legislative matters affecting the truck transportation industry. Forty-four states will be faced with hundreds of proposals affecting fuel and registration taxes, toll roads, uniform laws in accordance with the AASHO Code, and anti-diversion of highway user revenues. The various proposals are outlined on Page 57.

### Knudson Asks Uniform State Codes

Defense Transport Administrator tells American Association of State Highway Officials that present irregular State size and weight limits, taxes and license fees constitute serious handicaps to the nation's transportation system in this emergency. He points out that western truckers carry more freight because their state codes are in agreement with AASHO standards. He urges action to unify Codes and Specifications. See Page 51.

### New York Bus Fleet Cuts Accidents 43%

Driver selection, instruction and safety methods that get results in most cities may fail when tried in the great metropolitan areas, such as New York City. Third Avenue Transit's case is typical. Average good methods just were not good enough. Current techniques have cut accidents by 43 per cent and won greater New York's highest safety award for two consecutive years, with a good chance for a 1950 award, which has not been made as this issue goes to press. See Page 54.

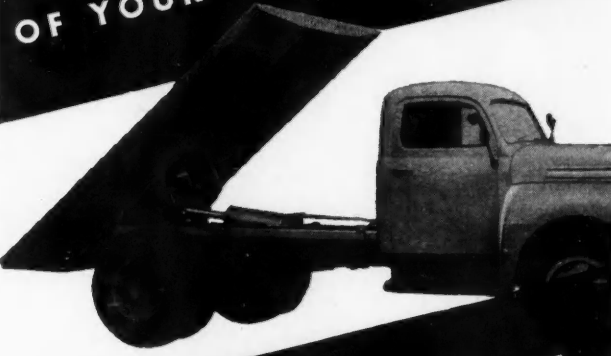
### A Report on the Maryland Road Test

Road Test One—MD is over but not finished. The road work was officially terminated on Dec. 23, 1950, but much of the paper work is yet to be done. This article is based on an interim report given to highway engineers, administrators and scientists at the 30th Annual Meeting of the Highway Research Board. The data are of extreme importance to all highway users. See Page 64.

### Wage Incentive Boosts Business

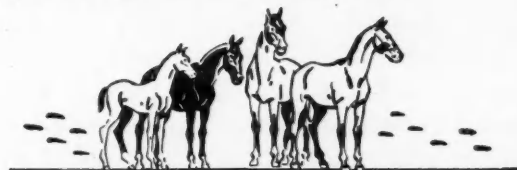
When employees stand to gain from the efficient and economical operation of their company, it's surprising what they won't do. Here's just a few things Gallagher Trucking employees do: Strive to cut costs, eliminate errors, handle vehicles and cargoes with care and dispatch, reduce accidents, stop job hunting, solicit business, and so on. As a result, Gallagher distributed an average bonus of \$1000. See Page 52.

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## Lubricants and Fuels

### FOR THE TRUCKING INDUSTRY

# CONFERENCE C O R N E R

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

## Subject: CO with LP Gas Engine

### Question: Is any carbon monoxide produced in the combustion of propane fuel?

N. M. Hartz, Instrument Line Manager, Mine Safety Appliances Co., quotes the U. S. Bureau of Mines information Circular No. 7284 in answer to CCJ's question of the month:

"Production of carbon monoxide by an internal-combustion engine operated on butane or any hydrocarbon fuel depends upon the proportions of air and fuel supplied to the engine by the carburetting device. If this mixture of air and fuel does not contain enough oxygen for complete combustion, carbon monoxide and other products of incomplete combustion will be present in the exhaust gases of the engine.

"References to the use of engines operated on butane fuel have been noted which state that less carbon monoxide is produced with the butane engine than with the gasoline engine. While this may be true of engines carefully adjusted and operated, it is emphasized that such operation is not an inherent characteristic of engines operated on butane fuel. There is little published information on the composition of the exhaust gases produced by butane engines, but such analyses as have come to the attention of the Bureau of Mines have indicated a wide range in concentration of carbon monoxide. In some instances the analyses have indicated essentially complete combustion with production of very small quantities of carbon monoxide, whereas in other cases the exhaust has contained carbon monoxide in concentrations as high, or higher, than the average gasoline engine produces. Samples collected in 1943 from the exhaust of trucks powered by butane engines and analyzed by the Bureau of Mines contained 8 to 11 per cent carbon monoxide.

"A further consideration in regard to the composition of the exhaust of the butane engine is that, even though the carburetting device of the engine were adjusted to minimize production of carbon monoxide, toxic oxides of nitrogen might be formed in quantities that would cause significant contamina-

tion of the air of (underground) working places. Although no quantitative data are available on production of oxides of nitrogen by engines operated on butane fuel, it seems reasonable to assume that such compounds are present in the exhaust, as the exhausts of both gasoline and Diesel engines contain appreciable concentrations of oxides of nitrogen."

For your information, the maximum allowable concentration of carbon monoxide in industrial atmospheres as established by the Association of Government Industrial Hygienists is 100 parts of carbon monoxide per million parts of air, and for oxides of nitrogen, the maximum allowable concentration is 25 parts per million parts of air.

Our company has been much concerned about the potential fire and explosion hazards created by the servicing of LPG vehicles in fleet garages, due to the higher volatility of this fuel and the fact that at normal atmospheric conditions it is a gas.

Fuel must be stored under pressure to keep it liquid. The tanks will naturally be equipped with pressure relief valves which will permit venting whenever an excess pressure is developed, as for example, that caused by a temperature rise.

Special filling equipment will be necessary for transferring the fluid from the storage tanks into the fuel tanks on the vehicle. Since this will be done under pressure, there is the possibility of leakage during transfer. Another possible cause of LPG liberation is that fuel in tanks filled outdoors on a cold day, then moved into a garage for repair or maintenance work, would be expected to expand on warming up, thus discharging vapors through a pressure relief valve.

Leaks could also develop between tank and carburetor and contaminate a substantial portion of the space in a garage. Since the fuel system is under pressure and the gas is highly volatile, this contamination could spread much faster than with fuels of lower volatility.

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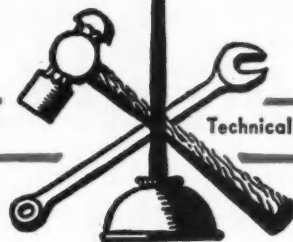
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# At Your Service

By M. K. SIMKINS

Technical Editor, Commercial Car Journal



## Flaw Inspection in PM

An interesting development that can now be incorporated in the shop's PM routine is this Dye Penetrant method of parts inspection for cracks, porosity and similar defects. Some fleets have already looked into this system and have found that a routine check up of engine and chassis parts before replacement has paid off in cutting vehicle tie ups and road failures.

The dye penetrant system consists of a penetrant applied to the surface of the parts to be inspected, a mark-developer to show the indications of flaws, and a dye remover for taking off the penetrant after use. Each of the liquids can be applied by dipping, spraying or brushing and offers the advantage of portability as well as low cost to the fleet shop.

Four steps complete the sequence. The surface is cleaned and covered with Dy-Chek. The penetrant is then applied and let to stand for about five minutes. The penetrant is removed and the surface is covered with a developer. At this point the spreading of the red penetrant on the white developer indicates the extent and volume of the flaw. A crack, for instance, is shown up in a red line, while pits or porosity is indicated by irregular dots or spots. A tight crack or a cold shut or partially welded lap will show up in irregular splotches in alignment.

This inspection system, while relatively new to the automotive industry, has been proven in Northrop Aircraft Shops. In these days ahead with parts shortages, it looks like a good thing for the transport industry.

## Mufflers That Are Not Mute

No part of a truck has been kicked around as much as has the muffler. Every man who owns a truck who services one, or who listens to one cross the road has had a field day telling manufacturers and engineers what *hasn't* been done to make them sound-proof, self-servicing and indestructible. Yet the same man may not have seen the exhaust system since the stripped chassis left his shop for a body.

It would seem to be the time to set up service routines for existing mufflers in order to improve life span and noise control. Let us not forget that when new super designs are built, they will still require periodic service if they are to control the noise for the life of the vehicle.

Criticism has been leveled at the muffler due to the fact that it: 1. was not long lived, 2. inefficient in silencing exhaust, 3. created excessive back pressure. What can you do as a fleet operator or mechanic to offset these conditions?

Muffler life seems to be directly proportional to the operating conditions under which it is exposed. In winter, when ice and snow collect on the shell, when water is splashed over it, the metal oxidizes and rusts much faster. Road salts used on highways promote this condition. Rapid temperature changes occurring when it is flooded from wheel splashing accelerates rusting. And finally start and stop driving conditions are conducive to muffler damage since sufficient heat is not developed to keep down condensation. A gallon of water is passed through the exhaust system for every gallon of fuel burned, and the exhaust system must evaporate it before it collects if rust is to be kept down. Add this to the carbon and acids arising from combustion and you have a condition which soon attacks the shell, the baffling and tubes. Therefore periodic inspection and service, especially after winter weather, is a necessity.

It is true that manufacturers even now can supply a component that will reduce if not eliminate these troubles. But that will cost a great deal more than present day designs. Whether premium priced assemblies will pay over regular units which last say one-third the mileage is questionable in the minds of many fleetmen.

The muffler and exhaust system are placed of necessity in a vulnerable spot, and will suffer from external damage as well. Flying stones, road shoulders and damage from tail pipe bumps cause many muffler failures. Such damage as kinked pipes are not obvious from a rapid inspection, and are many times overlooked. The inspection routine, therefore, should be developed carefully and should be relatively frequent due to the above factors.

More often than not the muffler is given a visual inspection and passed when it is actually guilty of causing excessive back pressures, sluggish engines, high fuel consumption, and dangerous leakage. Burned exhaust valves sometimes result when high back pressures disrupt the proper aspiration of the engine, trapping hot gases around the valves. Pitting and eventual failure is the ultimate result of this condition. Poor exhausting can cause up to 10 per cent

(TURN TO PAGE 14, PLEASE)

# Fleets

## WAGNER CoMaX BRAKE LINING

*assures longer wear and quick, safe, smooth stops*

Give your truck drivers the good brakes they deserve by relining with CoMaX—and you'll be miles and money ahead in the long run.

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3. NON-COMPRESSIBLE—and won't swell. Brakes won't require frequent adjustment.

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# At Your Service

Continued from Page 10

increase in fuel consumption, and this in most cases is due to a clogged muffler, kinked exhaust pipe or restricted tail pipe. Fumes arising to the cab, of course, are the result of leakage in the line either at the plumbing connections or through rusted out spots in the assembly.

When these conditions are experienced, it is a simple task to check the exhaust system before the carburetor, the fuel pump or the ignition is blamed. Back pressures can be checked quickly on a chassis dynamometer or with a manometer. The system should not pull over  $2\frac{1}{2}$  in. of mercury, although manufacturers' specifications should be referred to before the units are declared satisfactory. The muffler should be tapped lightly with a hammer. A dull thud usually will indicate heavy carbon formation, while a rattle will indicate loose tubes, plates or baffles. Leakage, of course, can be detected by discoloration occurring around the connections or seams in the shell.

When deposits are found, there is little that can be done to clean it since the design does not lend itself to dismantling. If the carbon formation is built up frequently, it can be assumed that the fuel system is too rich, or the spark is not properly adjusted. However, instrument tests should have shown up these conditions in previous check-ups. When defective mufflers are found, it is wise to replace the entire exhaust line, since the pipes can be expected to be damaged to a similar degree even though disintegration is not at once apparent.

Though fleetmen are not satisfied generally with the mileage obtained from the muffler, so many conditions influence the life span that satisfactory performance cannot be determined. A CCJ survey on September, 1949, showed that national average for mufflers is around 37,000 miles; for tail pipes, 36,000 miles. Some fleets, however, are getting over 65,000, yet others have cut the figure down to 22,000.

Better exhaust systems are on the way, but you will pay high for them, and until then it is wise to service and replace when conditions demand.

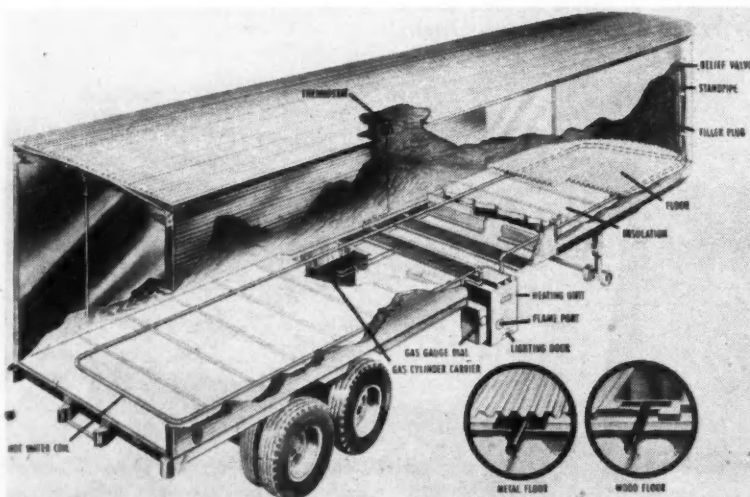
## Valve Problems with LP Gas

Due to the fact that air fuel mixture ratios when using liquefied petroleum gas are in a range of 14.5:1 up to 15.2:1 for maximum power, the exhaust valves in some cases have been a problem. There has been distortion and valve burning not only of the valve but of the valve seat. The slower burning characteristic of liquefied petroleum gas, its volatility and good mixing quality resulting in better distribution, provide a basis for smooth operation on much leaner mixture ratios than could ordinarily be expected on gasoline.

"A study of air fuel ratios for liquefied petroleum gases made at Oregon State College indicated that maximum power air fuel ratios for propane is 15.5:1. The maximum power air fuel ratio on N-butane is 14.7:1. These figures stand in comparison with air fuel ratios on gasoline of 13:1. Optimum economy air fuel ratios for propane were found to run 17.9:1 as compared to 16:1 on gasoline. N-butane air fuel ratios for maximum economy were found to be 17.5:1. Obviously, there is a greater amount of excess air likely to be present in LP gas air fuel ratios which may contribute to valve problems. It is evident then that there may be cases where the existing exhaust valve and valve seat specification will not be such as to provide the valve and seat life which the operator is entitled to expect and, therefore, a careful investigation of this phase of the engine conversion or engine design job is warranted.

"Generally speaking, those cases in the field that gave valve trouble were corrected by changing to a different material and the installation of valve seat inserts. In some cases, even a change in the valve spring rate was found necessary in order to eliminate the pounding of the exhaust valve into the seat. Of course, this problem can also be solved to some degree by providing the correct hardness of seat. Since liquefied petroleum gas air fuel mixtures burn cleanly and leave no residue, there is no residual film of carbon or partially burnt oil to serve as a cushion as the valve comes down on the valve seat. Consequently, a harder valve seat material has generally been found necessary than is normally used in gasoline operation. No specific problems seem to have arisen insofar as intake valves and seats are concerned."

*The above comments were taken from a paper prepared for the SAE Annual Meeting by A. J. St. George, of Ensign Carburetor Co.*



## Radiant Cargo Heater

Here's a new Radiant Floor Cargo Heater, introduced by Luminator, Inc., Chicago, which conforms to the latest ICC order prohibiting the exhausting of fumes inside the vehicle. It is a propane gas heater which mounts under the vehicle and exhausts its fumes into the atmosphere. This eliminates the possibility of contamination of the loading because there are no fumes in the cargo space. The system does not occupy any part of the cargo space.

The floor of the vehicle is warmed by liquid circulating through pipes in the floor and distributes heat evenly throughout the load.

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# The OVERLOAD

E D I T O R I A L C O M M E N T

## Manpower—The Industry's Number 1 Problem

ON even the late date that this is being written, no positive controls on wages, prices and job priorities had yet been effected. But the handwriting on walls across the nation was unmistakably clear. All of these were in the wind and manpower shortage was fast becoming the number 1 problem of truck and bus fleet operators.\* Here are just a few reasons why.

In 1941, on the eve of World War II, there were between 9 and 10 million unemployed. As of January 15, 1951, there were slightly more than 2,000,000 unemployed, of which more than 25 per cent were unskilled farm workers and an even larger percentage were unemployable in the skills required by the fleet operator.

What are the current demands on these 2,000,000 unemployed? The military needs 900,000 men between now and June 1. Washington has announced that defense agencies of the government will require an additional 900,000 and the estimate of defense plant labor needs by the end of the year is very close to 4,000,000. That makes a total of 5,400,000 men needed in these categories alone, against a pool of 2,000,000 unemployed. It takes only a tiny parcel of negative arithmetic to prove that there are troubled days ahead.

On top of that are such immediate threats to present employees as:

(1) Higher wages in other industries, (2) selective service, and (3) the call-back of at least some of more than 3,000,000 reserves. (Latest "poop" on the latter, incidentally, is that *active* reserves now receiving pay for organized drill periods will be called ahead of inactive and voluntary reserves. This is a complete about-face from previous policy. But still there is no clear cut policy as to how these reserves will be called or deferred).

Fortunately there are some bright features to offset the dark complexity of the manpower shortage. This time, Washington officials have the immediate experience of the World War II record, with its shortcomings as well as its highpoints to guide them.

\*Equipment and material shortages have not been forgotten, but these are the primary responsibility of the manufacturer. Manpower is the direct responsibility of the fleet operator.

Already able Defense Transportation Administrator James K. Knudson, has indicated that he is a friend of truck and bus interests, willing and eager to help with their problems. On his part-time advisory staff is ATA's Labor Relations Director Ben Miller who probably knows as much about highway transportation manpower problems as any man alive, and to whom we are indebted for many of the ideas on this page. In addition fleetmen throughout the nation are sharing their know-how on numerous committees. From all these sources there is real hope of better government understanding.

Meanwhile what can the average fleet operator do to prepare for the obviously acute manpower shortage which lies ahead? Here are a few specific ideas:

1. Make a careful inventory of present personnel, tabbing the draft eligibles and the most likely reserves and planning for their possible replacement.

2. Complete at once the vitally-needed manpower surveys put out by various truck and bus associations and now in the hands of thousands of fleet operators. They will serve as the *only* factual guide for defense planners.

3. Seek out and establish close contact with your nearest U. S. Employment Agency. There is growing evidence that these agencies will again become the funnel through which nearly all manpower will flow, and on a job-priority basis. In many cities the union driver pool is still the popular place for seeking replacements, but the supply from this source is nearly certain to trickle and stop.

4. Work, strive and fight to sell your government officials on the fact that transportation is *primary defense*. This is particularly important in view of the not unlikely possibility of a labor draft if the going gets really tough. Despite recent strides, Washington is still placing much greater emphasis on production than on transportation.

5. Consider carefully, and urge your union to do likewise, the problem of longer hours (without the unpatriotic and catastrophic cost increase of time and a half). It has been estimated that one more hour a week, throughout all industry, is the equivalent of an added labor force of 400,000 men!

Bart Rawson

Editor

# ccj REPORTS

on News of the Industry

## GSA Aids Small Operator

To better facilitate dealing with the United States Government, the General Services Administration has been charged with job of cutting unnecessary red-tape in the making of small purchases and paying for small services. The GSA must also broaden the sources of Federal supply as one necessity of defense spending.

The plan includes establishment of regional offices in ten widely separated cities. In these regions, information offices will be set up where suppliers may get the necessary data on who wants what when. Under the Department of Commerce a synopsis will be published daily of the current needs of the Department of Defense, the Commerce Department, the General Services Administration, and the Veterans Administration. These synopses may be had at any regional GSA offices as well as at thousands of chambers of commerce and cooperating business houses in various locations.

To have your name on the mailing list to receive supply schedules and other publications on what the Government needs, simply write to your nearest GSA office, using your own letterhead, and explaining the type of service you have to offer. A questionnaire will be sent which must be returned for office information. That's all.

## Drivers Say "Thanks" For Help in Storm

Civic celebrations were held by both Irwin, Penna., and Medina, Ohio, for acceptance of the formal \$4,000 thank-you from truck drivers for the communities' hospitality to motorists and truckmen during the Thanksgiving snowstorm.

The money was donated by truck drivers and their companies in behalf of the thousands of travelers given food and shelter in Ohio, Pennsylvania and West Virginia.

Presentation at Irwin was made by Claude Poling of Akron, a driver for Motor Cargo, Inc.; that at Medina by Walter G. Mitchell of Deshler, Ohio, a 13-year-accident-free employe of Kramer Brothers Freight Lines, Inc., of Detroit. Both men were among these given storm hospitality.

The \$1,500 Irwin gift will buy books for the community

library. At Medina, a \$1,500 check will help build a shelter at the city's new recreation park.

## Free Advisory Service Offered

Hunter Mfg. Co. of Cleveland has instituted an advisory service which covers "Engineered Transport Temperature Control" which is now available to fleet owners, shippers, carriers, and truck body and trailer builders. The service is being offered without charge or obligation.

Every phase of temperature control for transport vehicles is embraced in this new service. It covers such factors as varied methods of checking and testing the efficiency of heating and refrigeration systems under actual operating conditions, as well as loading methods, insulation, weather-proofing and the arrangement of ducts, wall battens, and floor liners to achieve maximum heating or refrigeration efficiency with any given system.

## ATA Sponsors Radio Forum

American Trucking Associations, Inc. is sponsoring the radio broadcast of American Forum of the Air, oldest and best-known of the discussion-type programs on radio. The program will be carried every Sunday for thirteen weeks over the full NBC network of 166 stations, with the basic time 1:30 to 2:00 P. M. EST. Presentation time varies not only by time zones but also with reference to individual stations in some cases.

While the program and its moderator preserve an independent status favoring neither side in the discussions, topics treated have often pointed to imminent public events or developments.

ATA's first program, on Jan. 7, was a discussion between Senator Kenneth Wherry of Nebraska (R) and Senator Clinton P. Anderson of New Mexico (D) on "The State of the Union." The debate centered around opposing viewpoints on President Truman's message to the new Congress. On Jan. 14, Senator Douglas (D), and Senator Dirksen (R),

(TURN TO PAGE 96, PLEASE)

## DATES and DOINGS

FEB. 5-7—National Truck Leasing System Annual Convention, Sheraton Hotel, Chicago, Ill.  
FEB. 8-10—Colorado Motor Carriers Assn. Annual Convention, Cosmopolitan Hotel, Denver, Colo.  
FEB. 26-MAR. 2—Sixth Annual Course for Maintenance Supervisors, Pennsylvania State College, State College, Pa.  
FEB. 27-28—American Transit Assn. Regional Meeting, Copley Plaza Hotel, Boston, Mass.  
MAR. 8—New Jersey Motor Truck Assn. Annual Convention, Essex House Hotel, Newark, N. J.  
MAR. 13-16—American Transit Assn. Regional Meeting, Hotel Deshler-Wallick, Columbus, Ohio.  
MAR. 19-20—American Transit Assn. Regional Meeting, Hotel President, Kansas City, Mo.  
MAR. 21-24—Pacific Automotive Show, Civic Auditorium, Seattle, Wash.  
MAR. 24—Arizona Motor Transport Assn. Annual Convention, Westward Ho Hotel, Phoenix, Ariz.  
APRIL 3-6—Greater New York Safety Council Annual Convention, Hotels Statler and Governor Clinton, New York, N. Y.  
APRIL 5-9—National Tank Truck Carriers Mid-Year Meeting, Boca Raton Club, Boca Raton, Florida.

APRIL 7—Kentucky Motor Transport Assn. Annual Convention, Kentucky Hotel, Louisville, Ky.  
APRIL 10-11—American Transit Assn. Regional Meeting, Royal York Hotel, Toronto, Ont., Canada.  
APRIL 16-18—American Society of Lubrication Engineers, Bellevue Stratford, Philadelphia, Pa.  
APRIL 21—Louisiana Motor Transport Assn. Annual Convention, Bentley Hotel, Alexandria, La.  
APRIL 26-29—Southwest Automotive Show, Oklahoma City, Okla.  
APRIL 30-MAY 4—Fourth National Materials Handling Exposition, International Amphitheatre, Chicago, Ill.  
MAY 7-9—American Transit Assn. Regional Meeting, Davenport Hotel, Spokane, Wash.  
MAY 10-12—Texas Motor Transportation Assn., Annual Convention, Plaza Hotel, San Antonio, Texas.  
MAY 17-20—Southwest Automotive Show, Birmingham, Ala.  
MAY 21-24—American Transit Assn. Regional Meeting, Lord Baltimore Hotel, Baltimore, Md.  
MAY 30-SEPT. 9—World Transportation Fair, Santa Anita Park, Calif.

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# DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

## New High for Truck Sales

Although truck production last year fell a little short of the all-time record set in 1948, sales by the end of November had smashed all previous full-year totals by more than 17,000 units. The first 11 months of 1950 accounted for 1,052,783 new trucks sold, compared with the previous record for a full year, 1,035,174 established in 1948. December registrations are not yet available, but it is expected they will exceed 80,000 so that 1950 may wind up with nearly 100,000 more trucks sold than in any previous year.

## ... But They Are Getting Older

Latest figures on the average age of trucks in use indicates clearly that the replacement need still is very large. Today the average truck on the highway is seven years old, compared with 5.6 years in 1941. About 2½ million, or more than 25 per cent, are 10 or more years old, compared with 825,000 before World War II.

## Output Good So Far in '51

There is increasing evidence that the number of trucks built this year will not suffer as large a percentage drop as will passenger cars. Essentiality for trucks is much easier to establish than for passenger cars so that under a Controlled Materials Plan, which seems to be shaping up, trucks probably will fare rather well. Companies making both passenger cars and trucks appear to be giving some advantage to trucks, since prices are not frozen and trucks are a higher profit item. One of the Big Three is reducing schedules very little, if at all, on trucks whereas passenger car schedules are down about 20 per cent. Output of cars and trucks in January was surprisingly good and is expected to hold up during the first quarter, resulting in perhaps as many total vehicles as were built in the same period a year ago when production was hampered by the long Chrysler strike. Any projection beyond March, however, is clouded at the moment.

## Aluminum Eased Slightly

Relaxation of the government's aluminum order has permitted many truck manufacturers to cancel plans for changing over to cast iron pistons. The revision of the

order to permit use of aluminum in functional parts within stated limitations indicates again that the government does not intend a drastic curtailment of vehicle production, at least until enough military orders are in production to absorb large amounts of manpower and materials.

## Reo & Dodge Defense Orders

Both Reo and Dodge have received additional large military orders for trucks from the armed forces. Reo has two additional letters contracts totaling \$55 million for an undisclosed number of Eager Beaver 2½-ton 6 x 6 military trucks. The orders bring to four the number of military contracts Reo has been granted, totaling more than \$100 million. The first contract for 4900 units was completed Jan 12. Military trucks are being built on the same assembly lines with commercial vehicles. Dodge has been granted an additional \$67 million order for military orders bringing the total to \$92 million. The orders are for cargo vehicles, telephone and maintenance trucks, command utility units and field ambulances. All are four-wheel drive units of ¾-ton nominal rating and are equipped with the same engine, which develops 94 horsepower. They are equipped to run completely submerged in water. Like Reo, Dodge is producing military and commercial trucks on the same assembly line.

## Standardization Push

Simplification of models offered by truck manufacturers appears to be on the way. One large manufacturer says that shortages of materials will reduce the number of optional gear ratios, transmissions, and so forth that are available and that production will be concentrated on trucks carrying specifications demanded in heaviest volume. Probably, certain alterations that may be required to fit a truck to a particular job may be done by the dealer.

## Winter Safety Test Started

A three-pronged winter research program is being sponsored by the National Safety Council's Committee on Winter Driving Hazards. The major phase of the program will be tests of the stability of tractor semi-trailer units. The committee also will complete tests of specialized winter tires by checking performance on hard-

packed snow, and truck tires with imbedded steel coils will be tested to determine the effect of wear and its relation to traction.

Ross G. Wilcox, secretary of the committee said that this winter's work on stability will be a pilot study limited to development of procedure and instrumentation for measurement.

## Varied Price Policy

Ford and General Motors are standing firm on their price increases on trucks and Dodge is doing likewise on its new models. Chevrolet and GMC increased prices \$50 to \$125 and Ford increases range from \$75 to \$275. Dodge prices are up \$80 to \$295. International Harvester on the other hand rolled back its prices to Dec. 1 levels in line with the government's request for voluntary rollback action. Price increases of \$25 to \$100 made Dec. 12 were wiped out.

## Reo Swaps "E" for "F"

Reo is changing the model designation of its 1951 truck line from "E" to "F." Specifications and changes on the new models have not yet been established and will be announced later. It is also reported that Reo has O.K.'ed tooling for a larger model of its Gold Comet engine. Displacement of the largest power plant in the Gold Comet series currently is 331 cu. in. It will take several months, however, to complete tooling and get into production of the larger engine.

## Natural Rubber Controlled

The Federal Government recently announced that it has taken over exclusively the importation and distribution of natural rubber. The function will be under the jurisdiction of the General Services Administration at the direction of the National Production Authority. GSA will resell the rubber to industry on the basis of NPA allocations. Rubber has become the first item to be exclusively purchased and distributed since controls were released following World War II. While the directive makes new contracts for rubber importation prohibited, all existing contracts will remain in force unless they are found to interfere with the operations of the exclusive buying program. Existing contracts should be registered with GSA immediately.



Photo—Courtesy Popular Photography Mag.

## Even if your windshield had to take this!

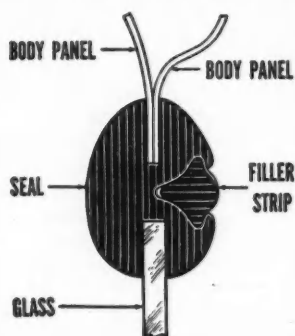
Inland Self-Sealing Weather Strip is not just *better* than ordinary methods of sealing automotive windshields and fixed windows. It's *best* . . . because it employs radically different principle and design to make a seal that can't leak.

The resilience of rubber, permanently compressed, effects the seal. It won't break down due to temperature changes. It provides *complete* and

*permanent* weatherproofing. And when glass breaks, Inland Strip is replaced with a fast, low-cost, one-man operation.

Specify Inland Self-Sealing Weather Strip in all new vehicles you order. Make sure of permanent leakproofing, lower replacement cost, less time out from profitable vehicle operation.

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General Motors Corporation, Dayton, Ohio



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The seal goes into the body panel, the glass into the seal, and the filler strip into the locking channel. That's all . . . a fast, low-cost, one-man job . . . done once . . . for permanent weatherproofing!



# *Self-Sealing Weather Strip*

(PATENTED)

# WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

## Truck Production Still Uncertain

In mid-January, the Nation's leading truck manufacturers descended on Washington to convince the Federal Government of the necessity of maintaining high-level civilian truck output. They met with officials of the National Production Authority, Dept. of Commerce, Defense Transportation Administration, Bureau of Public Roads, National Security Resources Board and the Dept. of Defense.

Briefly, the manufacturers want relief from the orders cutting back permitted usage of key materials such as copper, aluminum, nickel and zinc so as to assure production of as many civilian trucks as possible before military orders begin to take the bulk of the production lines. Steel is not as great a problem, although supplies are tight, since there has been no NPA limitation order on this product.

It is estimated that the government-ordered cuts in the use of non-ferrous metals will slash truck production some 20 to 25 per cent during the first quarter of this year. The manufacturers would like to continue production at last year's rate of some 1.4 million units for at least the first six months of this year.

How successful the industry's efforts will be is a moot question. The industry representatives were encouraged by their reception and feel certain that a government-sponsored truck program, guaranteeing materials through allocations and relief from existing orders, is in the cards.

Bearing out this outlook is the work now going on in the Defense Transportation Administration. DTA's Street and Highway Specialist, Lee Hyde is working up a bill of materials for the truck and trailer programs presented by ATA and the Truck-Trailer Manufacturers Association, respectively. (CCJ, Jan., pg. 168.) Since DTA is the claimant agency for highway transportation, its presentation to NPA requesting materials must be completed before any overall truck program is possible. At press time, adequate data on light truck requirements was still lacking.

## Heavy Trucks Are Affected

The big pinch in trucks is expected to be in the heavy categories. This is due largely to increased military buying of both civilian and military type heavy vehicles. The military take of commercial type heavies has increased greatly as a result of the change in policy which calls for replacement of tactical vehicles with commercial types in posts, camps and stations.

This situation could become serious in the last half of the year. Already, there is talk in Washington of building additional facilities for heavy-axle production, possibly with government aid.

## Tire Situation Becomes Acute

The shortage of replacement tires, caused by the cutbacks in natural rubber, is being joined by a shortage of tires for original equipment. Truck producers are not having any great difficulty in procuring large-size tires, but trailer pro-

ducers are telling NPA officials that tires are the No. 1 supply problem. NPA is helping where it can. But the big problem here is the tremendous jump in trailer output during the last six months.

## Terminal Construction Limited

Construction controls have also been tightened. Under an amendment to M-4, after Feb. 15, approval of NPA must be obtained for building terminals, garages, service stations, most kinds of warehouses, retail stores and service type buildings—and, in fact, most commercial type buildings costing \$5,000 or more. No restrictions are placed on normal maintenance or repair. Wholesale food warehouses and storage facilities for fuels are exempted from the order. This action followed a 30-day construction freeze as of Jan. 15.

Truck terminals and warehouses are covered by the order and NPA approval will be necessary for such construction. Officials at NPA told CCJ that for working purposes such structures must be considered as being primarily service-type buildings. They admit, however, that such classifications may be controversial, but they say they will make individual decisions when appeals are submitted.

## Octane Rating May Be Controlled

The high average octane rating of 91 for premium fuel and 84.4 for regular, reached during the fall of 1950, is due to drop during 1951 due to the need of tetraethyl lead for defense purposes. Meetings were held with industry in late January to discuss a proposed order by the Petroleum Administration for Defense which would set octane ceilings. Not yet issued at press time, the proposed order was expected to limit octane rating of premium fuel to 90, intermediate grades to 86, and the regular gasoline to 84. Officials said that although octane ratings are generally higher in the coastal areas, the cuts would not be great enough to appreciably affect engine performance. In most inland areas, the octane ratings are generally below the octane ceilings.

## New Taxes Being Considered

Congress began on February 5 to hear proposals for raising the \$16.5 billion the government needs to keep from going in the red during the next fiscal year.

The tax-writing committees of the Senate and House still are undecided as to how this sum—or any part of it—is going to be raised. But the House Ways and Means Committee, which expects the public hearings to continue for "a month or more" beyond February 5, is prepared to listen to any and all comers who have ideas on how to raise new revenue.

Government tax experts—both in Congress and in the Treasury Dept.—have reached no agreement as to how the necessary funds should be raised. Higher excises on vehicles, gasoline, and virtually all other products now subject to federal excise levies, are being considered and probably will

(TURN TO PAGE 186, PLEASE)

# 19 ROUND TRIPS TO THE MOON each year

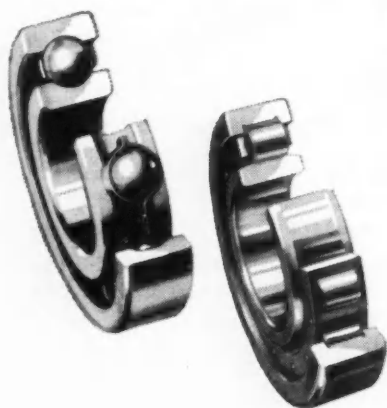


...on **SKF** bearings

Refiners Transport & Terminal Corp., Detroit, are among the largest petroleum haulers in the Midwest. Operating a fleet of 200 "trains"—shorter semi-tank trailers with a full trailer attached—they travelled 9,000,000 miles in 1950 . . . hauled 660,000,000 gallons of petroleum products . . . rolled up a total of 600,000 operation hours.

Equipment—and bearings—have to be plenty rugged to stand up under that kind of punishing service. So—it's only natural that Refiners order automotive replacement bearings from SKF's Detroit Distributor, Detroit Ball Bearing Company. They know from experience that SKF Bearings—in this case SKF Single-Row Deep-Groove Ball Bearings and SKF Cylindrical Roller Bearings—have extra stamina, extra service, extra life built right in them. Your SKF Distributor can give you these extra performance values—plus service that means profitable operation.

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integrity  
craftsmanship  
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product uniformity  
engineering service  
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# SKF

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**SKF** and HESS-BRIGHT bearings



TRANSPORTATION SUPERINTENDENT: "YOUNG MAN, WHAT DO YOU MEAN BY BRINGING MY DAUGHTER HOME AT 4 O'CLOCK IN THE MORNING?"

TRUCK DRIVER: "GOTTA GO TO WORK AT 7, SIR."

CCJ

Maintenance Superintendent: "Say, Boss, why do you keep that goldfish in its bowl on your desk?"

Motor Fleet Operator: "Because it's a novelty to have something opening its mouth without asking for a raise."

CCJ

Freight Checker: "Did you get home all right after the party last night?"

Truck Dispatcher: "Oh, yes, thanks, except that as I was turning into my street, some idiot stepped on my fingers."

CCJ

A cute, delectable damsel in a breezy convertible was following a transport truck when her eye was caught by a sign on the tailgate: "If you can read this you're too darn close." Shortly thereafter she parked her convertible in the shopping district, entered a hosiery shop and asked if she could purchase nylons with that same message embroidered around the tops. "It's an irregular request," said the clerk dubiously, "but I suppose we can do it for you. Would you like block letters or script?"

"Neither," said the damsel firmly. "Braille!"

CCJ

Truck Lessor: "How much do you want for this '40 model tractor?"

Commercial Car Dealer: "Thirty five hundred dollars, my friend!"

Truck Lessor: "Thirty five hundred bucks?—You're nuts, I'll give you \$1000."

Commercial Car Dealer: "That's a heluva discount, but I'll take it."

T.L.: "How come you'll take \$1000 after asking \$3500?"

C.C.D.: "Well, I just sorta thought maybe you'd like to own a \$3500 tractor."

CCJ

FIRST SHIFT GREASEMONKEY: "WHERE WAS YOUR SON-IN-LAW WHEN YOU FIRST SAW HIM?"

SECOND SHIFT DITTO: "RIGHT SMACK IN THE MIDDLE OF MY SHOTGUN SIGHTS!"



CCJ

Fatty Floorboarder, our cross-country van driver, vows and declares that he saw this sign on a bulletin board in front of church in a small Tennessee town: Subject for this Sunday: "Do You Know What Hell Is?" Come and hear our new organist.

CCJ

Steno Sue: "Cora looks terrible in that low-cut gown, doesn't she?"

Steno Lou: "Not as far as I can see!"

CCJ

Long Distance Operator: "The rate is \$1.20 for three minutes, and 30 cents for each additional minute."

Superintendent of Driver: "Do you take off anything for just listening? I want to call my wife."

CCJ

I wish I had studied French,

The language is so gay;

In French you can write naughty things

You otherwise can't say.

CCJ

First Truck Mechanic: "What's that crawling on the shop wall, over there?"

Second Truck Mechanic: "That's a lady bug."

First T. Mechanic: "Gad! What eye-sight."

CCJ

It was a heavenly night made only for love, and a pretty but prim little school teacher had accepted the truck

driver's invitation for a drive in his car. Moonlight and the soft autumn breeze proved too much for her scruples and . . . well . . . she let him kiss her.

Instantly she was in tears on the trucker's shoulder. "Oh, oh!" she wailed. "How can I ever face those innocent little children again, with two black marks against me?"

"Whaddya mean, two black marks?" asked the truck driver.

She snuggled closer. "Why . . . you're going to kiss me again, aren't you?"

CCJ

WEAVIN' WILLIE SAYS: "BOYS, YOU BETTER GET A GOOD LAUGH OUT OF THE BATHING SUITS THEY'RE WEARING THIS YEAR, 'CAUSE NEXT YEAR THERE WON'T BE NOTHING TO LAUGH AT."

CCJ

Garage Operator's Wife: "You rascal you, here you come sneaking in at 3 a. m. I guess you've decided that home is the best place after all."

Tipsy Hubby: "I don't know so dad blamed much about that. It just happens to be the only place I've found open."

CCJ

The Safety Director's little son was a heller. Because of his consistent refusal to eat, his frantic mother took him to a prominent psychiatrist, who coaxed the boy with every conceivable goody, but in vain. Finally he said, "What would you like to eat?"

"Worms," was the calm reply.

Not to be outdone, the medico sent his nurse out for a plate full of the wrigglers. "Here," he barked to the boy.

"I want them fried," came the answer.

The nurse got them fried and returned with the plate.

"I only want one," said the Safety Director's little food hater.

The doctor got rid of all but one. "Now," he exploded, "eat!"

The boy protested, "You eat half."

The doc did, then he dangled the remaining half in the little fellow's face. The boy burst into loud tears.

"What's the matter now?" yelled the infuriated mind doctor.

"You ate my half," the little heller wailed.



## High Speed — High Mileage Economy Records...*never known before!*

*The figures will Jump from your record books*

**WHO SAYS SO?** Thousands of American truckers have established the record-breaking Raymaster mileage capacity—saving millions on the great high-mileage fleets, without limits as to speed or distance.

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# UNITED STATES RUBBER COMPANY

# DTA's Knudson Asks Uniform State Codes



by James K. Knudson

Administrator, Defense Transportation  
Administration, Washington, D. C.

Tells AASHO members that "Although reasonable variations in state size and weight limitations are to be expected, there are no justifications for arbitrary and restrictive regulations which are intended to hamper, harass, or embarrass users of the highways . . . in the time of national emergency, State restriction on highway transport have a more serious effect upon the welfare of the nation than at any other time."

**V** DURING THE PERIOD between World War I and World War II, severely restrictive legislation was imposed upon truck sizes and weights and otherwise upon the operations of interstate highway traffic. There may have existed good and sound reasons for the erection of such impediments. There may, on the other hand have been some rather subjective approaches to the issues.

Commissioner Joseph B. Eastman, who was later the Director of the Office of Defense Transportation in World War II, stated at a conference on interstate trade barriers that, "the situation has been affected, at times to a controlling extent, by the desire of the railroads to limit . . . the competition they encounter from trucks and buses. The railroads have been extremely active in seeking restrictions upon the size and weight of motor vehicles for this purpose."

The seriousness of state and local barriers to motor transport in relation to the war effort in World War II prompted President Roosevelt, in May

of 1942, to call a Federal-State Conference on interstate trade barriers.

Following this conference, heads of the Federal War Agencies met with the Executive Committee of the Governors Conference. As a result of this meeting, all states agreed to the adoption of an Emergency Formula covering minimum sizes and weights of motor vehicles and providing for reciprocity for the war period.

This action was hailed as an outstanding example of what a united nation can do in an emergency.

After World War II, however, many of the states returned to their old programs of handicapping highway transportation by application of numerous restrictions.

Now, I desire to make it perfectly plain that I believe the states justifiably have a proprietary interest in their roads, because they furnish either a whole or part of the funds used in their construction. To safeguard this interest, each state quite properly should take measures designed to save its highways from damage and unnecessary wear and tear.

To that end, it is the common practice to limit the weights, lengths, widths and heights of vehicles using

the highways, whether such vehicles are engaged in intrastate or interstate commerce. These restrictions also are necessary for the protection of bridges and tunnels, and for highway safety purposes generally.

## Hits Burdensome Restrictions

**B**UT even well-intentioned restrictions sometimes can be carried to burdensome extremes.

It must be recognized that there are qualitative differences in road construction, and that the human element in the administration of highway policy creates differences in judgment concerning road capacity, weight and size limitations; thus, adding further to the lack of uniformity among states.

Although reasonable variations are to be expected, there are no justifications for arbitrary and restrictive regulations which are intended to hamper, harass or embarrass users of the highways.

The Board of Investigation and Research, which studied transportation problems intensively, submitted a report to Congress in 1944 in which it was pointed out that "the most ob-

(TURN TO PAGE 132, PLEASE)

EDITOR'S NOTE—This article has been excerpted from a paper presented by Mr. Knudson at the 36th Annual Meeting of the American Association of State Highway Officials in Miami, Fla.

*Gallagher drivers do not abuse their vehicles because the higher the maintenance costs, the smaller their bonus*

By  
J. E. Angel



▼ THE GALLAGHER TRANSFER CO. of Denver, Colorado, adopted a wage incentive plan two years ago. As a result, it distributed an average bonus of nearly \$1,000 to its employees last year.

George Cannon, an official of the company, explained why Mr. Gallagher adopted the plan in these words:

"You can't get anywhere by just keeping on raising wages. You have to make employees see the value and importance of the profitable operation of business. The best way to do this is to give them a monetary interest in it."

Higher shipping rates, he went on to explain, are the inevitable results of higher wages, and this adds to the spiral of inflation. If something is not done to stop kiting of wages, the money structure will collapse and then everyone loses; labor as well as management. Mr. Cannon feels that the incentive plan is a good answer to the problem because it stabilizes trucking economy by arriving at a solution agreeable to all parties.

The following is a brief outline of the plan Gallagher Transfer Co. put in effect: First, it must be remembered that the whole profit-sharing program is an addition to and not a substitute for the existing wage-hour system of computing the employees' wages.

#### 25% of Net Profit

TO ESTABLISH this fund, the company computes its net profits before taxes are deducted at the end of

every month. Then 25 per cent of this profit is set aside each month for the bonus fund.

On the first day of every November, the 12 months' accumulated total is closed out. The accounting department figures out how much of this money each employee is to get, and the bonus check is presented to him the day before Christmas.

To determine how much each employee will receive, a percentage factor first is calculated by dividing the 12 months' participating payroll (salary of all those with six months' service) into the total set aside. Each employee's yearly participating salary then is multiplied by the percentage factor. The answer is the bonus earned.

New employees do not draw a bonus for the first six months of their employment. An individual who started to work, for example, nine months before November 1st gets a proportional share based on a three-month participating salary. A person who starts to work three months before November 1st receives no bonus check the first Christmas, but draws one the second Christmas, based on nine months participating salary.

No one has a vested right in this money. Should an employee quit dur-

ing the year, he loses his accumulated share. Whenever an employee is forced to leave for reasons beyond his control, however (a protracted illness or being inducted in the armed services are representative examples), he draws what is due him as of the date of his departure. If an employee dies during the year, his beneficiaries are paid the money due him at the date of his demise.

#### Employees Get Statement

THE company hands out a monthly statement to all employees showing the accumulated balance in the bonus fund, and the amount earned for each dollar unit of participating salary.

A typical statement, showing the condition of the profit-sharing plan for any given month, is reproduced above. Such a statement would be distributed to all employees sometime during the following month. The figures shown are all round numbers and are given for the sole purpose of illustration. *They bear no relation to either the gross or net profits of the Gallagher Transfer Co.*

#### Cost of Errors Deducted

AFTER the individual's bonus dividend is computed, the accounting department then adds up all the mis-

## HOW THE GALLAGHER BONUS PLAN IS CALCULATED

GROSS REVENUE (for typical month)	\$500,000.00
NET EARNINGS BEFORE TAXES	200,000.00
EMPLOYEE'S SHARE, AT 25%	50,000.00
PARTICIPATING PAYROLL (6 mos. service)	120,000.00
EMPLOYEE'S SHARE PER DOLLAR EARNED	.4166

Below is a summary of the net results for a nine month period.

	PAST EIGHT MONTHS	CURRENT MONTH	9 MONTHS TOTAL
GROSS REVENUE	\$3,000,000.00	\$500,000.00	\$3,500,000.00
NET EARNINGS BEFORE TAXES	800,000.00	200,000.00	1,000,000.00
EMPLOYEES'S SHARE, AT 25%	175,000.00	50,000.00	225,000.00
PARTICIPATING PAYROLL	700,000.00	120,000.00	820,000.00
EMPLOYEE'S SHARE PER DOLLAR EARNED	.2500	.4166	.2743

EDITORS' NOTE—These are not actual figures. They are shown merely to illustrate the type of accounting used in arriving at the employee's share of total bonus.

# Boosts Business

**Plan of paying 25% of net profits spurs all employees to work at top efficiency, handle vehicles and cargoes with care and dispatch, cut errors and costs, and solicit business**

takes the employee had charged against him during the bonus period and deducts this from the earned bonus. The remainder is the amount of the profit-sharing check.

This charge-back for personal errors is the unique feature of the Gallagher Plan. This is done to make employees bear the responsibilities of efficient performance of their tasks. If an employee were to make large enough mistakes, he could lose his entire bonus for the year. In no event, however, could his contractual union salary be affected.

Should his charges for errors exceed his bonus, the company would stand the difference out of operating expense. The deficiency would not carry over into the next year.

An employee sending out an un-

necessary teletype message would be an example of a common error. If the message cost \$1, this amount would be charged against the person who made the error, and deducted from his bonus.

Another possible mistake might arise from the wrong routing of cargo. If a shipment arrives at the wrong destination, it is returned to the originating station, and the employee who placed the shipment on the wrong vehicle would be charged for the freight from the station of origin to destination and return.

### Employees Decide Charges

TO PLAY fair, management does not decide these charge-backs. They are determined by an Employee's

Committee. This body consists of a few employee elected from the working personnel, every worker casting a ballot. The committee meets once a month for that purpose, and its decisions represent the amount of money an employee is charged with at the end of the bonus period.

The mistakes are detected by management. At the monthly meeting they are presented to the committee in the form of memoranda. Management turns in an average of 125 of these memos at every meeting, and they represent mistakes ranging from 25 cents up.

The facts of each error are concisely set forth. The employee charged with the mistake has the right to present his side of the case.

The decision of the Employee's Committee is final. If it should decide that an employee was not responsible for an error claimed, then management charges it to operating expenses. However, in the two years the plan has been in effect, the committee has decided that 99 per cent of the claims presented were just.

The average employee does not make enough mistakes during a year to consume his entire profit-sharing check. Needless to say, when an employee knows that he has to pay for his errors, he strives to keep them at a minimum.

Because of the value of cargo and vehicles handled, the dock employees and the truck drivers are given special consideration. Because an error in either department could amount to more than the yearly bonus, each division assumes group liability for the mistakes in their respective departments.

This is how this works:

When a dock worker has made an error, he pays to the limit of his bonus. If the mistake comes to more than this, then the group bonus makes up the balance. In other words, the deficiency is absorbed proportionally by all other dock workers.

Should an error originate on the dock, and be of such a nature that it cannot be pinned down to a specific person, it also is paid for out of group bonus. An illustration of such a circumstance might be where a shipment is lost in transit. If the dock receives the cargo, and that is the last anyone hears of it, all dock workers stand the loss as a unit.

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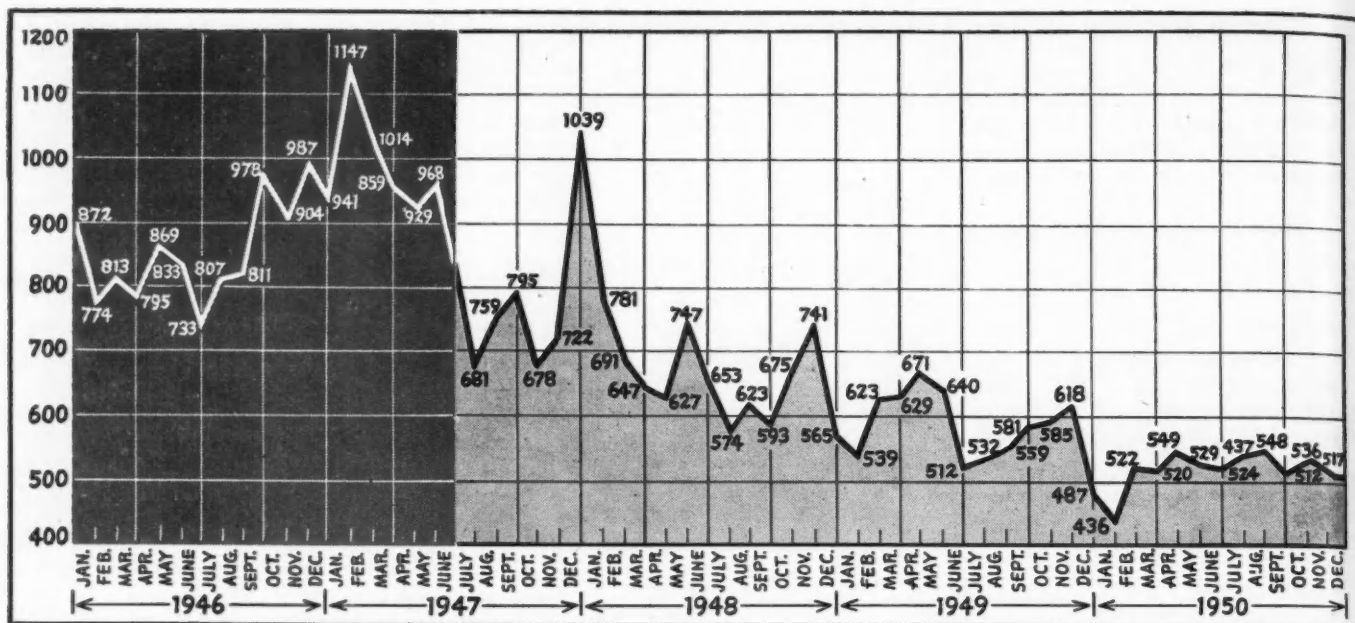


FIG. 1: Third Ave's 5-yr. accident record. When new program started in '48 reduction in accidents resulted until over a three year period 43% was reached. (Below left) is reproduction of award won by Third Ave. for two consecutive years



# New York Transit Property C

Improved selection, instruction and safety techniques achieve outstanding results, which have won Greater New York highest safety award for 1948 and 1949, with good possibilities for 1950

FOR THE THIRD consecutive year, we have demonstrated that it is possible to reduce accidents—even in New York City—with proper training and supervision. As shown in the accompanying graph, Fig. 1, our accident total for 1947 was 10,425. The total for 1950 was 5,917, or a decrease of 43.2 per cent.

We all agree that this is a fine reduction in accidents, but we have just got into our stride. We are determined to continue reducing the number of accidents.

It should be made clear that these accident totals are not confined to vehicular accidents. They also include

shop, or industrial type accidents and what we call "no reports"—such as a case where a person claims he or she was injured leaving a bus but about which the driver had no knowledge and made no report.

The methods used to achieve the above-mentioned result are really quite simple and, except for one or two techniques, the procedures are quite common. The secret, if it can be so called, of our success lies in the persistency of our methods rather than any special, unique features. We subscribe fully to Edison's definition of success—10 per cent inspiration and 90 per cent perspiration.

By Edward E. Lippner

Director of Safety

and

John J. Moran

Assistant Director of Safety

Third Avenue Transit System, New York, N. Y.

The "Old" Program

BY WAY of comparison, the following nine steps were employed up to 1947 in hiring new drivers: We refer to these as the "old" system—contrasted with our current system—



FIG. 2: Driver Instructor Emil Girard demonstrates how driver takes motor ability test. Assistant Safety Director John J. Moran was recording on meter

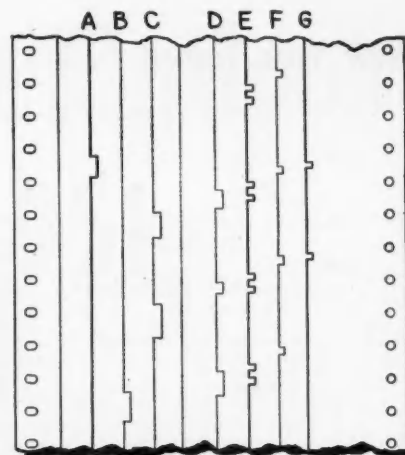


FIG. 4: Reproduction of the Angus graphic record of driver's responses to instructions in motor ability test

# ty Cuts Accidents 43%

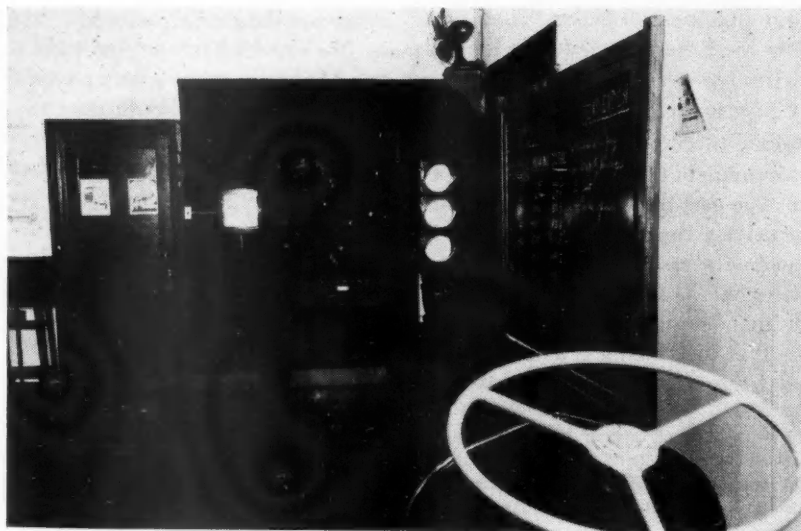


Fig. 3: Driver being tested sits behind dummy wheel and faces this signal board. He is instructed to go through certain shifting and braking operations in accordance with light signals

although the basic procedures are practically the same.

1. Applicants for driver positions were interviewed. There were no rigid age limits. A personable 21-year-old, who made a good impression and showed a desire to make

bus driving a life-time vocation, had as much chance as a 40-year-old.

2. Prospective drivers then were asked to fill out an interview card. This was the conventional form asking for personal details previous employment record, education, character

references, and so on.

3. References were checked. Efforts were made to determine if the applicant was sober, steady and honest.

4. A physical examination was given the applicant when his references and other investigation proved satisfactory. The physical was the standard medical examination.

5. When the applicant passed his physical, he was instructed in the handling of our vehicles. This was followed by a test.

6. Applicants passing all examinations up to this point were given a break-in period of 20 to 30 days with other drivers. During this period, they were checked at various intervals by the Division Road Instructor.

7. Having successfully passed the break-in, the driver candidate was qualified by the Division Road Instructor. Unlikely candidates were weeded-out during this break-in period. If any minor faults were noted during the break-in period, the instructor discussed these and the method of correction with the applicant.

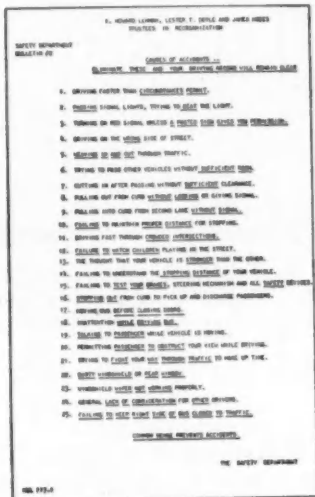
8. At this point the applicant was engaged as a driver on a 90-day probation basis. He would get either regular or relief runs with occasional check-ups to determine if his handling of the vehicle and passengers was satisfactory.

9. Having passed the probation period, a driver was accepted as a permanent operator.

Our method of checking accidents also was quite conventional. It consisted principally of filling out an (TURN TO NEXT PAGE, PLEASE)

# New York Transit . . .

Continued from Page 55



**Fig. 7: Safety bulletins are distributed to drivers periodically. This one gives 25 causes of accidents**

accident report form. This was followed by an interview with the Division Superintendent, who made an effort to get all the facts and establish responsibility. Only in cases of flagrant negligence, would the driver be discharged. Usually he was talked to and advised how to avoid an accident in similar situations should they occur again.

**Present Methods More Thorough**  
STEP by step, our present methods are almost similar to those outlined above. Applicants are required to be interviewed for suitability, fill



**Fig. 6: Some of Third Ave's newer buses, a part of 60 delivered in October**

out an application form, the references are checked, physical examinations are given, and so on, through the nine steps. The differences between the present and previous methods are principally a matter of thoroughness and the application of most modern mental as well as physical health standards, more intensive instruction and more thorough accident investigation. In addition, personal supervision has been stepped up.

To avoid any impressions of oversimplification of our current program, it should be explained that it embraces the use of the most modern available scientific instruments and highly developed techniques; the latter being principally the result of our own experiments to improve our methods. Most of these were not part of our previous program. They constitute the difference between the old and the new—and what a difference they proved to be!

Added to all of this, is that 90 per cent ingredient of Edison's—perspiration. The past three years have shown conclusively that ordinary efforts beget ordinary results. Members of this department have become so imbued with the determination to cut accidents that the "business as usual," or usual business hours, are a thing of

the past. Not only are safe driving practices taught and pursued during the day hours, but at nights, also, we hold meetings and make spot observations and checks.

## Advanced Techniques

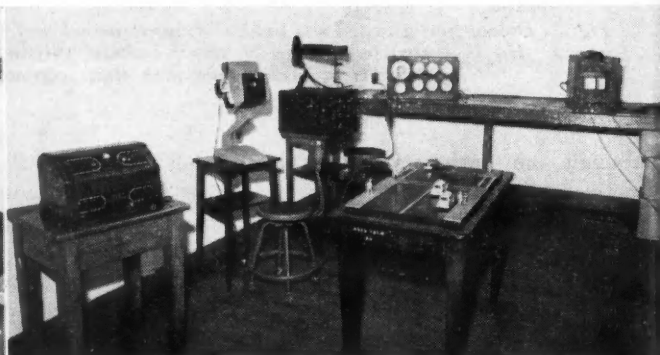
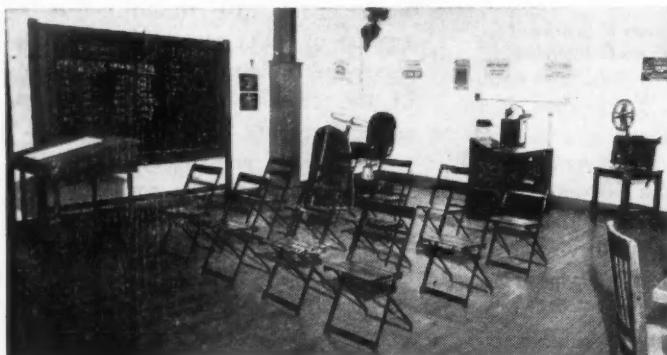
**I**N ADDITION to the intensified methods of supervision, the new techniques and employment requirements, by John D. Sureau, personnel director, now in effect have contributed greatly to accident reduction.

Among our new requirements with respect to employment is age limitation. The preferable age is between 25 and 35 years. However, this is somewhat flexible. When conditions are especially favorable, applicants as young as 23 and as old as 38 years are accepted. In any case, married men are definitely preferred.

We check character, personal traits and habits to obtain better type drivers. Educational requirements are 3 yrs of high school or more—and we insist that all applicants have a chauffeur's license and one year's driving experience in New York or some other large city.

Our standard of medical examination set forth by Dr. Harold H. Brandaleone, medical director, is  
(TURN TO PAGE 112, PLEASE)

**Fig. 8 (Left): The system's safety clinic is well equipped with large classroom. Motor ability test equipment may be seen in background. Fig. 9 (Right): Shows the vision and hearing laboratory where exacting tests are given each driver**



THE CONVENING of 44 state legislatures in 1951 takes on added significance, in the viewpoint of the nation's millions of highway users, because of the vital necessity, at this time, of developing and maintaining highway transportation at maximum efficiency to meet the needs of the nation in this period of national emergency.

The Federal government has grave responsibilities in directing and coordinating the total mobilization effort but it is the states themselves, acting through their individual legislatures, who build the roads and make most laws which regulate that all-important segment of the national economy—highway transportation in all its phases.

#### Highways and Defense

DURING World War II, the highways of the nation were allowed to deteriorate due to shortages of materials, equipment and manpower. In the past five years, there has been a determined effort by many states to catch up on the work deferred during the war and the depression period preceding it but, to date, efforts to bring all highway systems to adequate standards have fallen far short of the needs. This inadequacy also can be partially traced to the tremendous rise in vehicle registration that has developed in recent years. Highway pavements are wearing out faster in many places as a result of increased traffic volume.

On this matter of highway construction and maintenance, the states seem to be faced with the question as to where they can place their available highway funds so that, not only will the best interests of the individual state be served, but also those of the nation. It seems evident at this time that projects which would be of high importance in a normal period must, of necessity, take secondary position in times of national emergency.

#### National Strategic Roads

THE National Grange, the American Association of State Highway Officials, the National Highway Users Conference and numerous other organizations have gone on record urging that priority be given to the construction and maintenance of those roads necessary to the defense and economic requirements of the nation

# Legislative Outlook for 1951

Forty-four state legislatures will be faced with a variety of Bills affecting the truck transportation industry. The most important of these measures are:

**TAXES**—At least 30 states will consider increasing motor fuel and registration fees. Ton-mile and other taxes will be an issue in at least 10 states.

**TOLLS**—At least seven states will consider toll road legislation.

**UNIFORM LAWS**—New or additional proposals for uniform laws are expected in 36 states.

**ANTI-DIVERSION** — Anti-diversion of highway user revenues may be considered in 12 states.



**By Arthur C. Butler**

Director, National Highway Users Conference

At least 30 states will consider the matter of increasing motor fuel and registration fees for motor vehicles. Ton-mile and other mileage taxes will be an issue in at least 10 states.

California, Indiana, Maine, Michigan, New Hampshire, Ohio and Tennessee will consider toll-road legislation in one form or another, while, in New York, final legislative approval will be sought for a bond authorization of \$450 million to defray part of the cost of the proposed New York City to Buffalo Thruway. Although its proponents claim that the Thruway is not a toll road, use of the highway is expected to require the purchase of a special license tag.

Comparisons of state traffic laws with one or more acts of the Uniform Code have been completed in 31 states and are underway in 13 others. Workbooks prepared by the National Highway Users Conference to facilitate the Code comparison have been or are now being used in 39 of the 44 states.

(TURN TO PAGE 162, PLEASE)

as a whole. The Interstate System of Highways, defense plant and military access roads would, therefore, come in for top priority if the states accept this point of view.

State user groups throughout the country will direct attention to the necessary expenditure of highway user funds on projects essential to defense. In addition, many user groups have been active in making long-range highway plans which should be of great value in determining highway priorities within their state.

#### Taxes, Tolls, Uniform Laws

DESPITE the emphasis on defense road building, the 44 state legislatures will be confronted with hundreds of proposals on every facet of highway transportation legislation.

# Shop hints

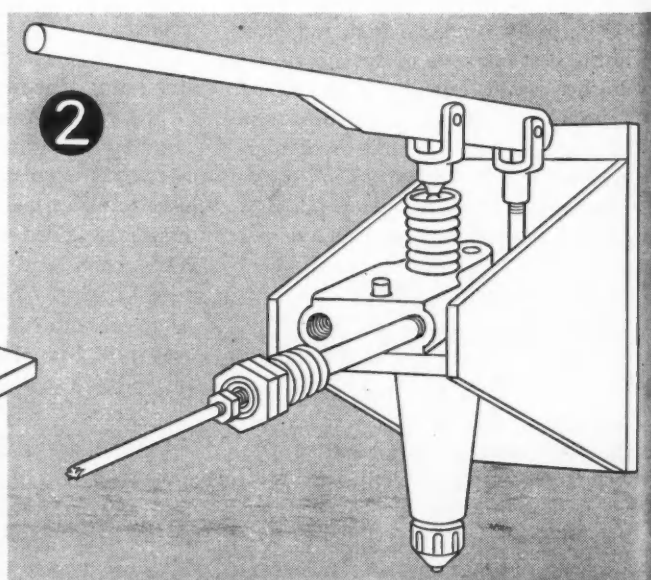
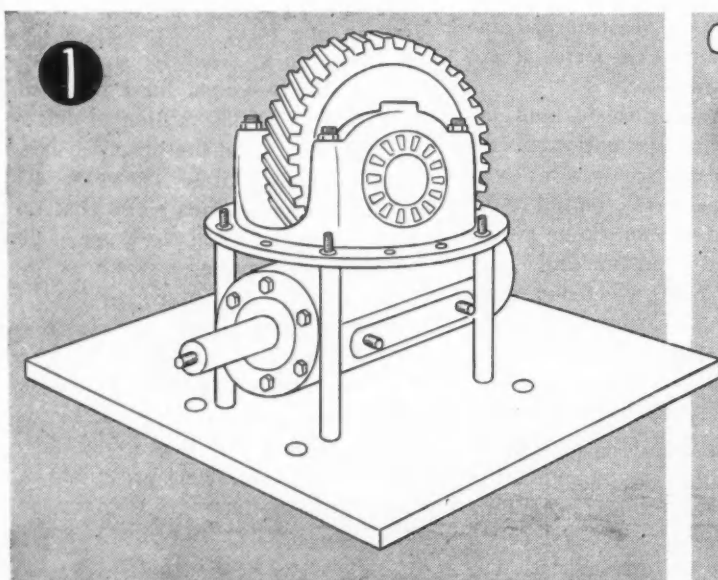
## From Lee and Eastes

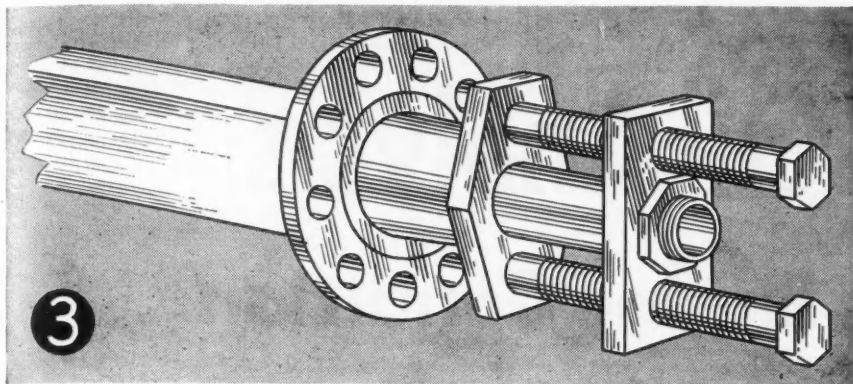
Lee and Eastes, Inc., over-the-road fleet located at Seattle, Wash., has developed a series of home-made devices to save time and promote greater efficiency in various phases of preventive maintenance work. This month CCJ has departed from our usual practice, to outline five of the most outstanding shop hint developments of the L and E Shop.

▼ HERE are five of L and E's time and trouble saving gadgets designed by some of the boys who felt that they could speed the job and make for easier working conditions by developing their own types of holding

devices. While there may be similar products on the market, it was felt that these specialized fixtures do offer some advantage over existing products in certain cases. Obviously other fleets may have to modify the sizes

and shapes to accompany their own models of parts and components. For this reason exact dimensions have not been provided. It is the purpose of this story to show only suggestions for jigs and fixtures, with tips on how





to hold them efficiently so that the mechanic can get at the unit for easier adjustment or repair testing.

Fig. 1 is a holding fixture for a differential assembly. This is made from a sheet steel base with holes drilled in a circle corresponding to the holes in the case cover. For larger assemblies a second series of holes is provided. Mounting bolts may be either threaded into the plate base, or long bolts may be inserted of a length sufficient to clear the assembly. Spacer legs are made from sections of  $\frac{1}{2}$ -in. pipe which fit over the bolts and provide for nuts which hold the differential case tightly in place while working on it.

Fig. 2 is a jig for holding the diesel

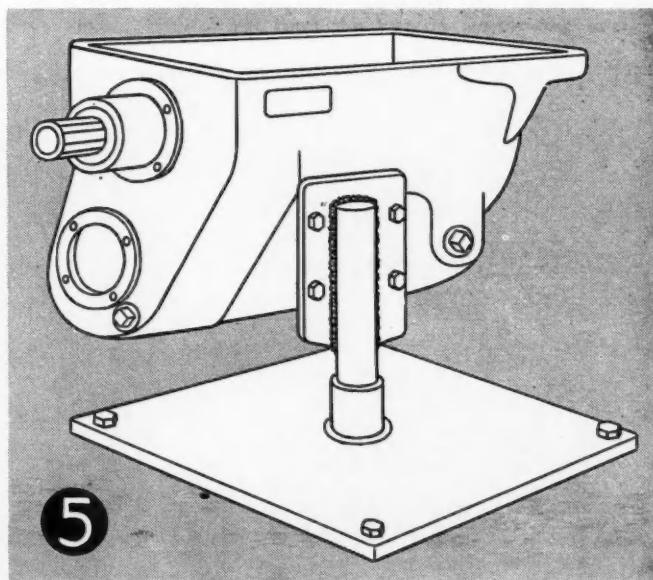
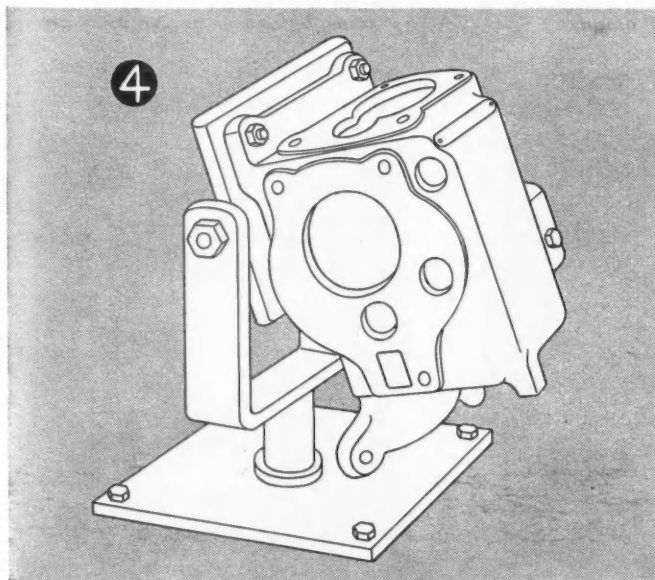
injectors while checking for leaks and while adjusting the nozzle spray. This is used in place of a vise. The injector is mounted on a regular holder which is welded to a support as shown. A lever arm is fashioned from scrap iron, and one clevis is mounted at the end and one at a point where it will contact the plunger. The end clevis is mounted on a  $\frac{1}{2}$ -in. rod which is in turn secured to the base plate for a fulcrum. Fuel is supplied through a hydraulic jack or ram, and the plunger is operated to test the spray pattern and the operation of the injector.

Fig. 3 is a puller for axle tubes. This device eliminates the necessity of driving out the tubes with a sledge

hammer. It can be used also when replacing axle tubes. This device is similar to a puller in that it uses two  $1\frac{1}{4}$ -in. bolts 12 in. long threaded into a puller plate. This plate is fitted over the axle tube ends and held in place by the axle tube nuts. The push plate is made from heavy 2-in. material drilled to fit over the axle and rest against the bearing seat.

Fig. 4 is a fuel pump holding stand made from a sheet steel base plate with a swivel seat into which is fitted a short length of 2-in. pipe. To this is welded a clevis type support which in turn holds a mounting plate. The mounting plate is so arranged that it pivots on a center pivot bolt so that the unit can be turned and held at any angle. With this double pivoting device the fuel pump can be turned to any position necessary to the speed and convenience of the mechanic.

Fig. 5 is a transmission stand somewhat similar in construction to the fuel pump stand. The base is a steel plate with the same type of swivel arrangement of the upright. This upright is a short length of 2-in. pipe to which is welded a flange drilled to correspond to the holes in the power take-off plate. This is bolted to the take-off face so that the transmission can be turned to various positions while being overhauled.



# Used Oil Analysis

## Exposes Engine Condition

Laboratory analysis of crankcase oil supplements maintenance records to show

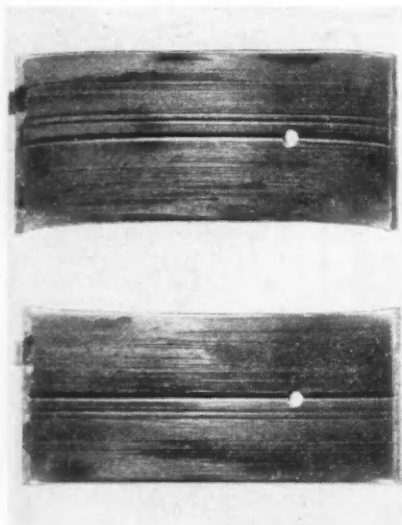
IN increasing numbers fleet operators are utilizing laboratory used oil analyses to stop costly repairs, reduce operating expenses and maintain safe drain periods. Laboratory used oil analyses are a relatively positive method of determining the reasons for unsatisfactory engine performance. They provide the fleet operator a chemical window revealing such operating difficulties as excessive wear, too high or too low operating temperatures, unsatisfactory filter performance, certain types of engine sabotage and others.

Used oil analyses cannot be used as

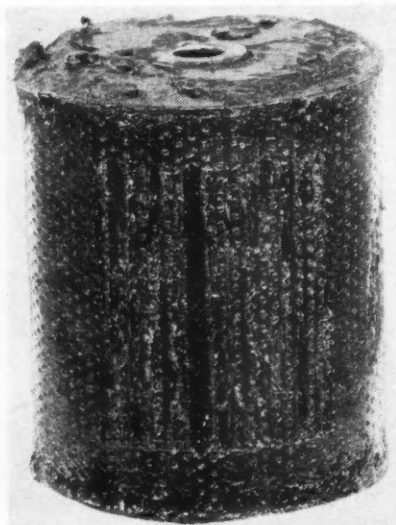
a substitute for a good preventive maintenance program, but should be used to supplement the maintenance records. If the fleet operator will utilize periodic used oil checks to correlate with the actual engine condition that he observes during the overhaul period, he will be able to locate hidden flaws in his preventive maintenance program. With a successful correlation he can safely extend his drain and filter change periods, make a better evaluation of the service life of his equipment and reduce operating expense by correcting unsatisfactory conditions before damage.

The major portion of engine operating complaints involving the engine oil—such as engine dirtiness, high oil consumption, low oil pressure, excessive wear, and others—are usually a result of some engine operating, maintenance, or design fault, rather than the fault of the lubricating oil used. If it is the fault of the oil, it may be because the wrong grade or type has been used. Therefore, before oil recommendations are made for unknown fleet operations (especially if the fleet has had "lubrication" troubles or in known fleets as a periodic check) the use of the Pure-Sure

**Fig. 2. Report shows . . . DIRT AND SAND IN OIL, resulting in scored bearings. By eliminating the source of dirt detected in the oil by laboratory analysis the fleetman can prevent premature engine overhaul**



**Fig. 3. Report shows . . . PLUGGED OIL FILTER. In this case the analysis report showed 1.8 in total solids, including tar and asphaltics. Periodic oil checks reveal such conditions before serious damage**



**Fig. 4. Report shows . . . CORROSION, with high fuel dilution. Dilution and blowby gases have pitted this piston in 3000 miles. Laboratory analysis brings to light these conditions before excessive damage**

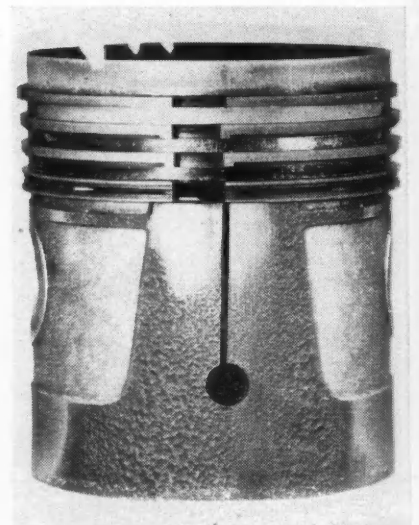


Fig. 1. Report on used oil shows abnormal conditions, possible contributing factors, recommended remedial measures. Below. Analysis sheet provides data for interpretation by oil supplier and gives the operator a detailed picture of his lubricants

by C. G. Rood

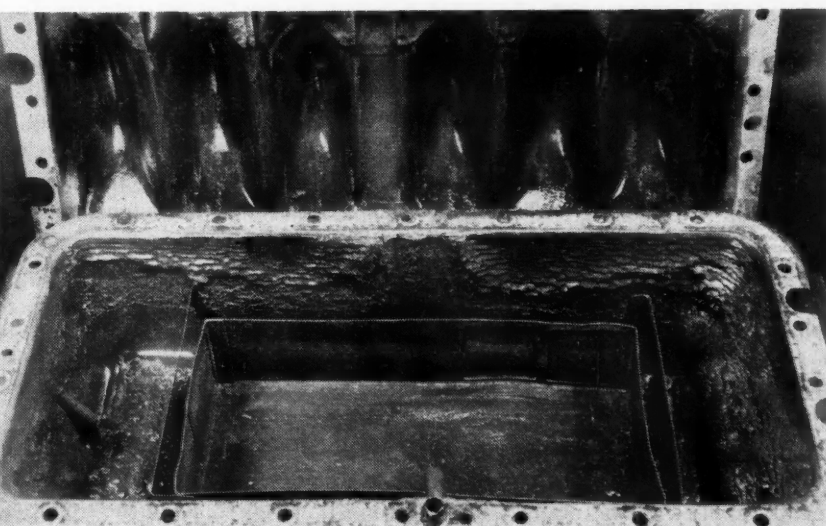
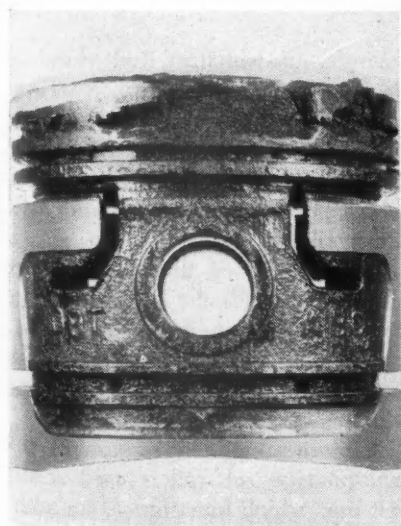
Technical Service Department  
The Pure Oil Co.

## engine and operating defects

Analysis System will prove helpful. These oil tests may not reveal every fault, but experience has shown that they will bring to light the most dangerous conditions.

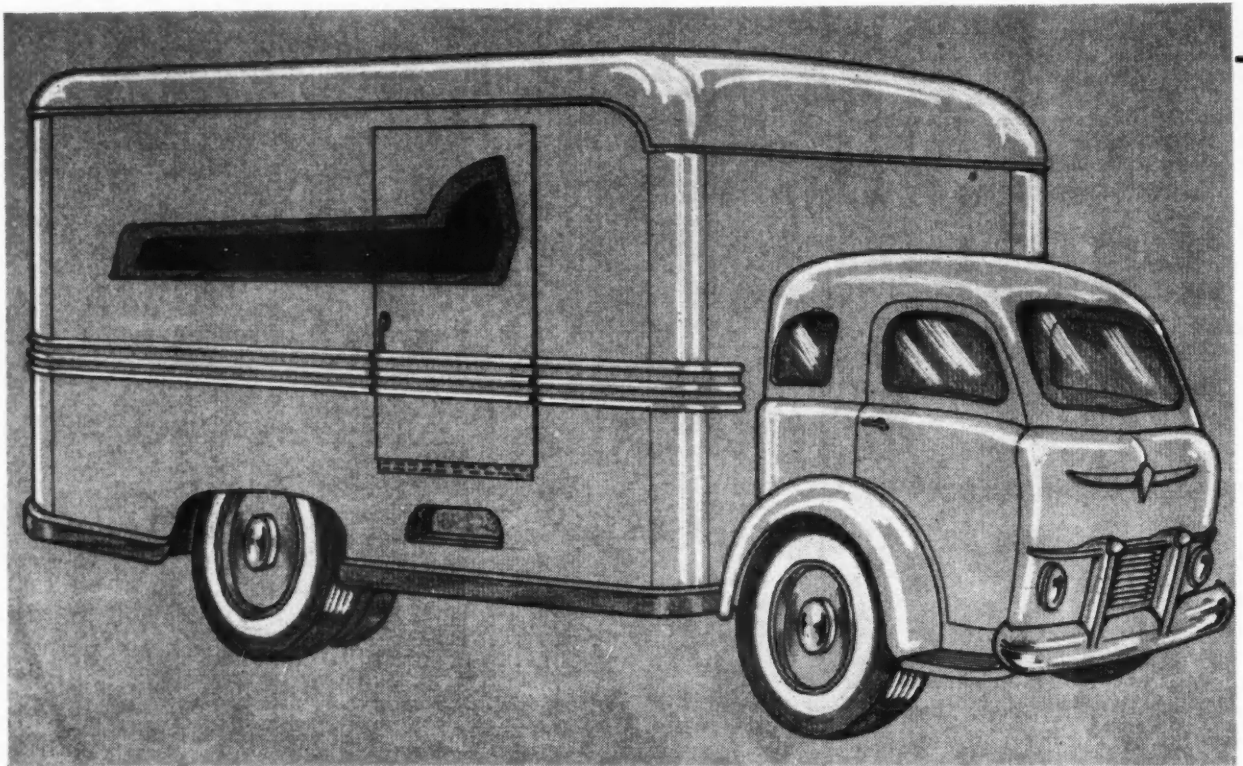
Tests, as offered by several reputable oil companies at no cost to the operator, are either conducted using standard A.S.T.M. tests or are based on such procedures. The tests are in no way specially rigged so that the "A" company's oil will always look better than the "X," "Y," or "Z" company's products. In a worn out, poorly maintained fleet the mechanic (TURN TO PAGE 148, PLEASE)

Below, Fig. 5. Report shows . . . PISTON AND RING FAILURE. The ring breakage causing this failure actually occurred before this stage. Below right, Fig. 6. Report shows . . . SLUDGE, with high fuel dilution, fuel soot and carbon. An early diagnosis with an analysis of the oil brings to light these conditions in time to correct them



UNSATISFACTORY OIL CONDITION INDICATED			
I. ABNORMAL CONDITIONS INDICATED	II. MAXIMUM SAFE LIMITS	III. POSSIBLE CONTRIBUTING FACTORS	IV. RECOMMENDED CORRECTIVE MEASURES
<b>A. Contamination Due to Excessive:</b> <input checked="" type="checkbox"/> 1. Fuel Dilution (Unburned fuel in the oil) <u>5</u> % <input type="checkbox"/> 2. Dispersed Solids (Solid materials held in suspension in the oil) _____ % <input checked="" type="checkbox"/> 3. Undispersed Solids (Potential sludge and varnish deposits) <u>0.5</u> % <input checked="" type="checkbox"/> 4. Total Solids (Sum of items A2 plus A3) as composed of the following items (Only those checked require attention) <u>2.0</u> % <input type="checkbox"/> a. Tar and Asphaltic Materials which are the result of decomposition of oil and/or fuel. <input checked="" type="checkbox"/> b. Gums which are the result of decomposition of fuel. <input type="checkbox"/> c. Hard Carbon (coffee grounds) <input type="checkbox"/> d. Fuel Soot (Particles of incomplete combustion) <input type="checkbox"/> e. Dirt <input checked="" type="checkbox"/> f. Metals: <input checked="" type="checkbox"/> Ferrous (Iron & Steel) <input checked="" type="checkbox"/> Non-Ferrous (Copper, lead, aluminum, brass, cadmium, silver) <input type="checkbox"/> 5. Water _____ <input checked="" type="checkbox"/> B. "Oil Body" (Viscosity) has <input type="checkbox"/> "thickened" excessively (Viscosity increase) <input checked="" type="checkbox"/> "thinned-out" excessively (Viscosity decrease) <input type="checkbox"/> C. Oil Consumption is Excessive— _____ miles/quart	More than one SAE number	<input type="checkbox"/> Excessive blowby <input checked="" type="checkbox"/> Inadequate crankcase ventilation <input checked="" type="checkbox"/> Incomplete combustion <input type="checkbox"/> Drain period too long <input type="checkbox"/> Oil Filter used too long <input type="checkbox"/> Extreme operating conditions <input checked="" type="checkbox"/> Low (Under 140°F.) <input type="checkbox"/> High (Over 250°F.) <input type="checkbox"/> Use of _____ oil where _____ is required <input type="checkbox"/> Dirty air entering engine <input type="checkbox"/> Use of aged, or gummy, gasoline <input checked="" type="checkbox"/> Contamination with <u>FUEL</u> <input type="checkbox"/> Carbonized sludge deposits from previous operations <input type="checkbox"/> Solids in the Oil <input checked="" type="checkbox"/> Fuel Dilution (3% reduces viscosity one SAE grade) <input type="checkbox"/> Excessive Moisture (Mayonnaise Sludge) <input type="checkbox"/> Severe Oil Oxidation (Over one SAE Grade viscosity increase) <input type="checkbox"/> Cooling System Leakage <input type="checkbox"/> Excessive wear is permitting <input type="checkbox"/> Excessive low temperature corrosion (rusting) <input type="checkbox"/> Excessive high temperature corrosion (Organic acids—bearing attack, etc.)	<input checked="" type="checkbox"/> Lubrication <input type="checkbox"/> Reduce oil change period to _____ <input checked="" type="checkbox"/> Reduce filter change period to <u>2500 miles</u> <input type="checkbox"/> Change _____ immediately <input type="checkbox"/> Change to SAE # _____ recommended by manufacturer <input type="checkbox"/> Change to _____ oil <input type="checkbox"/> Install Oil Filter(s) <input type="checkbox"/> Check new oil handling practices <input type="checkbox"/> Check condition of filter and filter pipe <input type="checkbox"/> Check for external oil leakage <input checked="" type="checkbox"/> Engine <input checked="" type="checkbox"/> Check carburetor <input type="checkbox"/> Check ignition <input type="checkbox"/> Check compression <input type="checkbox"/> Flush engine <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Check air cleaners (Carburetor and crankcase ventilators) <input type="checkbox"/> Insulate oil pan, etc. <input checked="" type="checkbox"/> Check cooling system for better temperature control <input type="checkbox"/> Install aux. ventilating system <input type="checkbox"/> Check crankcase ventilating system
<b>V. COMMENTS—</b> <u>INCOMPLETE COMBUSTION IS INDICATED BY HIGH FUEL DILUTION, VISCOSITY DECREASE, AND THE PRESENCE OF GUMS. CHECK CARBURETOR FOR RICH MIXTURE OR EXCESS USE OF CHOKE. CHECK FOR LOW COOLING WATER TEMP. AND/OR EXCESS IDLING OF TRUCK.</u> Date <u>11-13-50</u>		<b>VI. FURTHER INSTRUCTIONS</b> Refer to _____ <input checked="" type="checkbox"/> Make recommended checks and changes and submit sample at next oil change <input type="checkbox"/> Submit sample of new oil <input type="checkbox"/> Submit sample of fuel <input type="checkbox"/> Submit used oil filter cartridge Signed <u>W.P. Wemmer</u> Technical Service Department, Chicago	

ANALYSIS OF USED OIL			
	Work By:		Work By:
1. Viscosity of Used Oil.....	<u>260</u>	8. Gums in 6.....%	<u>1.2</u>
2. Used Oil SAE No. ....	<u>Low 20</u>	9. Insolubles in 6.....%	<u>1.2</u>
3. Fuel Dilution .....	<u>4.16%</u>	10. Metals in oil.....	<u>SLIGHT</u>
4. Undispersed Solids .....	<u>1.5</u>	11. Water in oil.....	<u>0</u>
5. Dispersed Solids .....	<u>1.0</u>	12. Fuel Soot in oil.....	<u>NORMAL</u>
6. Total Solids (4 & 5).....	<u>2.5</u>	13. Free Carbon in oil.....	<u>ABNORMAL</u>
7. Tar and Asphaltic in 6.....	<u>0.1</u>	14. Dirt and Sand in oil.....	<u>NORMAL</u>



# Local Delivery

## Vans With a Custom Touch

Designed and Copyrighted by **E. M. Westberg**

**Use of streamlined roof caps, deep skirts, and multiple-type rub rails greatly**

**WHAT IS BELIEVED** to be a most interesting universal van-type body is presented this month as the third design of the current series, which is intended to bring to the attention of the fleet operator and body builder the almost unlimited possibilities in the careful and studied application of readily available prefabricated body parts.

It goes beyond the usual appearance and utility features to be accomplished by design and presents, in effect, a whole method or procedure of body production which can be readily applied to the major portion

of both custom and production type designs regardless of quantities involved. It is a manufacturing procedure which leans quite heavily on prefabricated body sections, and one which has been thoroughly proved by the writer's own experience in the production of custom steel bodies. The design illustrated stresses, first, economical production costs and then appearance and utility.

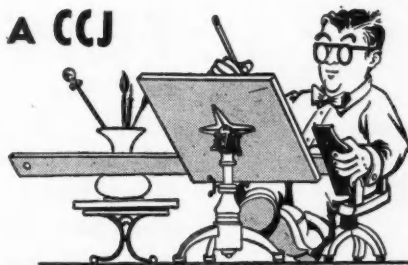
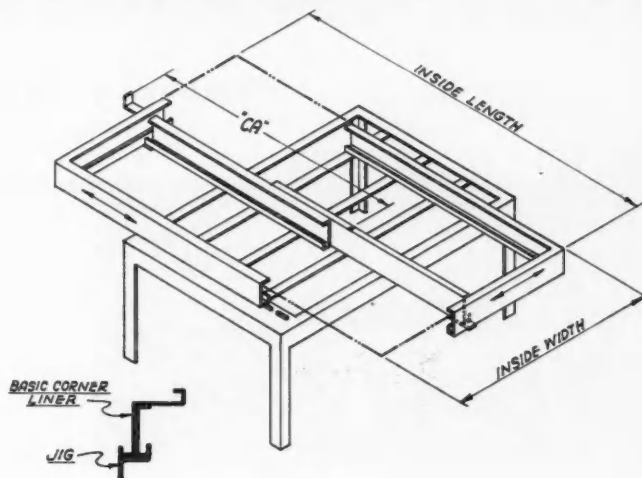
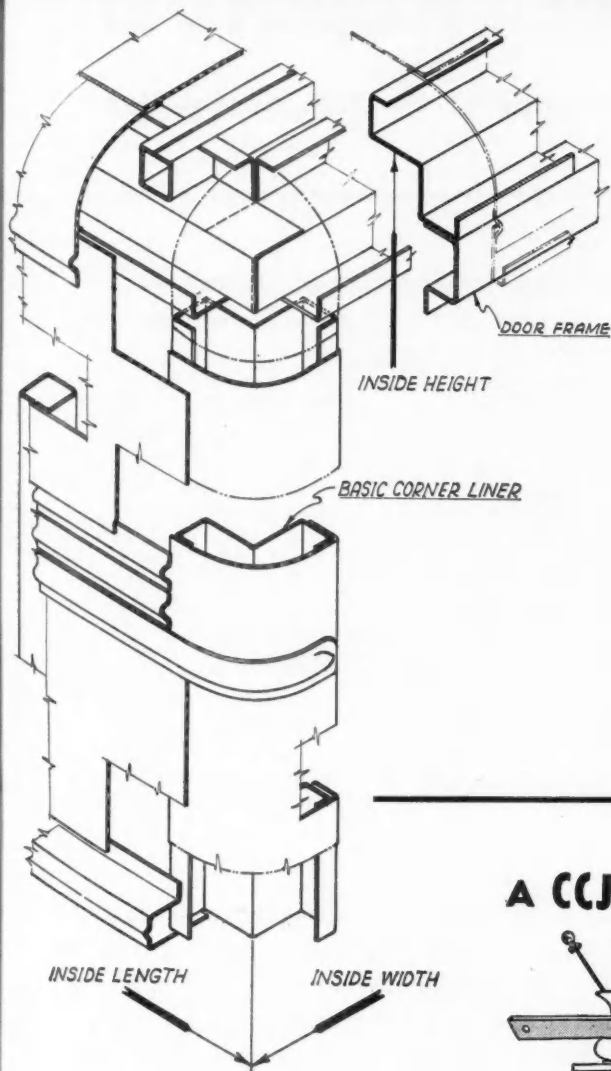
### Appearance Features

**TO BEST** meet utility and service requirements, a body of this type must, of course, be of the square-box-

type design, which in itself does not produce a very attractive body. However, this condition can be effectively improved by the use of a streamlined front roof cap, of which many different prefabricated types and sizes are available.

Also, a cap of this design more effectively blends the body lines into those of the streamlined cabs. This is a type of improved appearance which may be attained at little cost and one which is very often overlooked.

A more simplified version of the multiple-type rub rail is used at the belt line, which functions as an addi-



## BODY of the MONTH

### improves conventional box-type bodies

tional swipe rail and gives improved appearance at the same time. This rail, the deep skirts and the heavy lower rub rail, together produce a rather attractive overall unit, including the cab, out of an otherwise square and ordinary box-type body.

In many cases, a slight taper may be given to the rear end of the body without affecting its utility and, at the same time, greatly improving the appearance.

#### Design Features

THE main design features of this body, as well as many others in

the series, emphasize production cost economies from every possible manufacturing operation. These production economies are achieved principally by a manufacturing method or procedure which is, in itself, adaptable to the major number of different body types required by fleet operators and which the body builder is called upon to build.

This design, and the methods by which it is produced, permits easy and unlimited variations in body sizes, door sizes, types and locations and arrangements, along with a variety of skirt types and depths. Actual

experience has shown that by these methods of production, and with key men constructing the basic structure, the need for engineering and shop layout is held to an absolute minimum; in many instances eliminated altogether. This affords an opportunity for very definite savings in operating overhead.

The body shown, in common with many other types of custom bodies, is purposely designed to use an absolute minimum of different body sections—approximately 10 or 12 basic ones. This, alone, reflects many possible operating economies which are often overlooked by the builder, and which represent savings that could be passed on to the fleet operator, or which would better help many builders meet their competition.

(TURN TO PAGE 121, PLEASE)

# "First Final" Report on

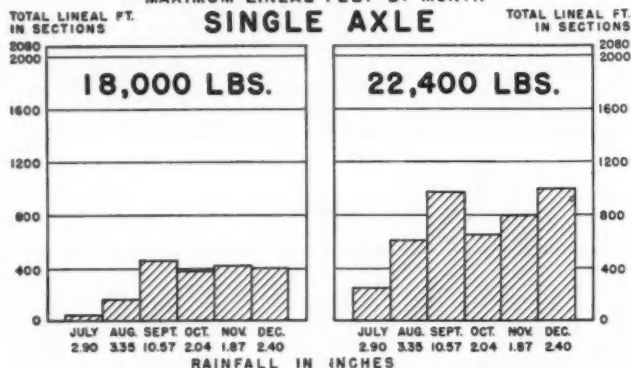
Summary of data presented at the 30th Annual Meeting



## PUMPING AT FREE EDGE

MAXIMUM LINEAL FEET BY MONTH

### SINGLE AXLE



### TANDEM AXLES

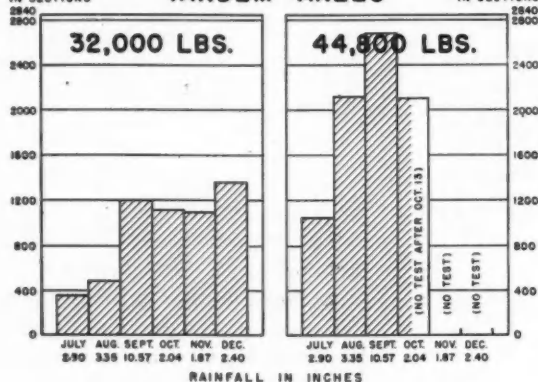


TABLE 3.—Results of Crack Survey

	June 23 to Dec. 23, 1950			As of Oct. 9	As of Oct. 13
	Section 1	Section 2	Section 3	Section 3	Section 4
<b>Longitudinal Cracks</b>					
Number	9	32	13	5	142
Total length—ft.	11	75	30	8	820
<b>Transverse Cracks</b>					
Number	37	154	128	38	285
Total length—ft.	191	909	822	216	1822
<b>Diagonal Cracks</b>					
Number	7	41	28	11	137
Total length—ft.	39	225	158	83	661
<b>All Cracks (1, 2, 3 &amp; 4)</b>					
Number	53	227	167	55	564
Total length—ft.	241	1210	1019	307	3303
Number of slabs involved	30	36	54	29	68
Per cent slabs in section	60	72	76.1	40.8	95.8
<b>Total Slabs in Section</b>	50	50	71	71	71
<b>Number of Load Applications</b>	238,275	238,283	164,523	92,000	92,166

TABLE 1.—Summary of Operations

Item	Section 1 <sup>a</sup>	Section 2 <sup>b</sup>	Section 3 <sup>c</sup>	Section 4 <sup>d</sup>
1. Period included: From.....	June 12	June 12	June 23	June 23
To.....	Dec. 23	Dec. 23	Dec. 23	Oct. 13
2. Total days operating.....	185	184	178	106
3. Net operating time—hours.....	2,999	2,980	2,762	1,578
4. Average operating time— In hours for a 24-hour period.....	16.5	16.8	15.9	18.2
5. Frequency of application.....				
a. Per 24-hour period.....	1,311	1,327	945	884
b. Per hour of operating time.....	80	80	60	68
6. Total number of applications.....	236,275	236,283	164,523	92,166
7. Mileage driven—				
a. On test section.....	111,889	111,792	106,688	59,256
b. Total (including service miles).....	114,026	113,953	109,605	60,226
8. Gasoline used, gal.....	19,617	25,854	24,967	17,612
9. Gas consumption—mpg.....	5.81	4.41	4.39	3.42

<sup>a</sup>—18,000 lb. on Single Rear Axle.  
<sup>c</sup>—32,000 lb. on Tandem Rear Axles.

<sup>b</sup>—22,400 lb. on Single Rear Axle.  
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ROAD TEST ONE—MD is over but not finished. This distinction in phraseology is made to point out that the physical road work was officially terminated on Dec. 23, 1950, but analyses of the basic facts recorded is yet to be done. This is a most difficult task—one which will require great study, accurate analysis and comprehensive correlation of all data obtained before the final report will be made.

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Compilation of the test data is a tremendous task. The amount completed to date was done in a great hurry and under great pressure, so that the fundamental facts could be presented at the 30th Annual Meeting of the Highway Research Board of the National Research Council held Jan. 9 to 12, 1951. That such an extensive report could be prepared in such a short time is indeed a tribute to the Project Committee, the Project Engineers and the entire test personnel.

# THE MARYLAND ROAD TEST

of Highway Research Board

By A. W. Greene Managing Editor, Commercial Car Journal

TABLE 2.—Pumping on Road Test One - MD

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Item	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total rainfall—Inches.....	2.90	3.35	10.57	2.04	1.87	2.40
Number days rained.....	17	10	11	7	5	5
Number days pumping was noted						
Section 1.....	17	14	18	28	20	19
Section 2.....	20	17	18	27	18	20
Section 3.....	20	13	17	25	19	20
Section 4.....	22	18	22	*		
Maximum number joints pumped						
Section 1.....	5	8	20	28	23	21
Section 2.....	8	11	38	38	41	38
Section 3.....	24	22	48	53	64	72
Section 4.....	38	44	70	*66		
Maximum lineal feet along free edge pumping						
Section 1.....	38	182	482	380	418	402
Section 2.....	245	805	862	852	789	1,008
Section 3.....	360	482	1,201	1,111	1,082	1,351
Section 4.....	1,041	2,115	2,681	*2,109		

\* Test traffic in Section 4 stopped October 13

Estimated Cost \$245,000

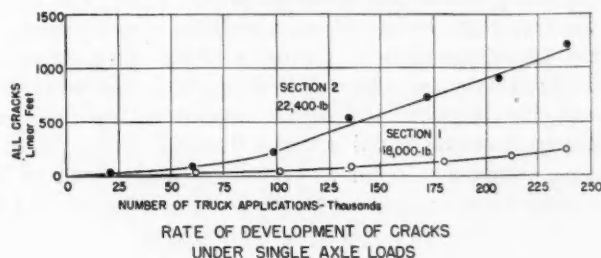
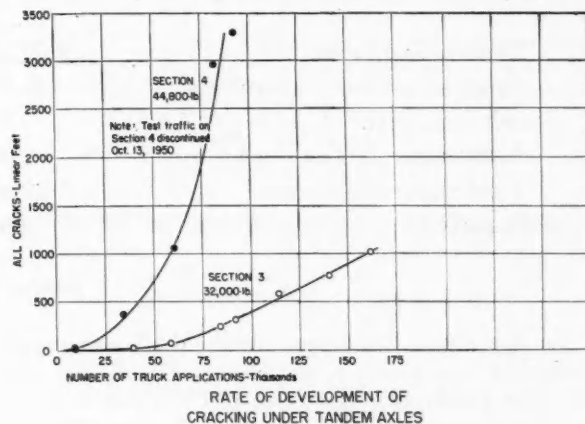
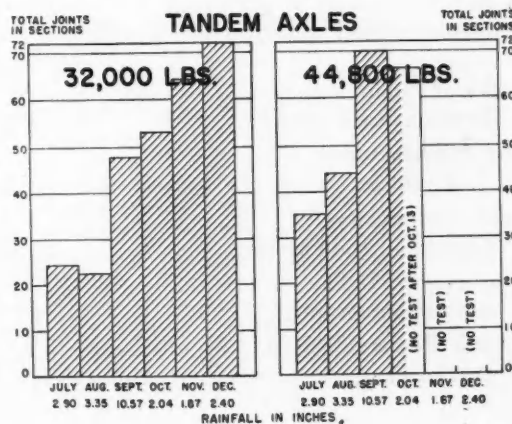
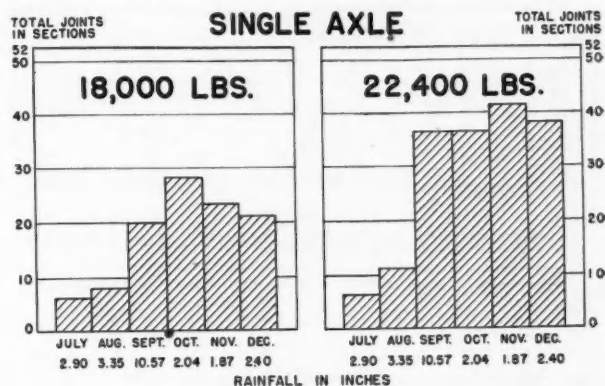
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PUMPING AT TRANSVERSE JOINTS  
MAXIMUM NUMBER BY MONTH

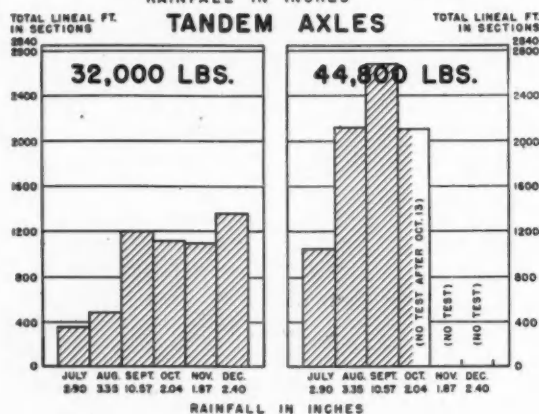
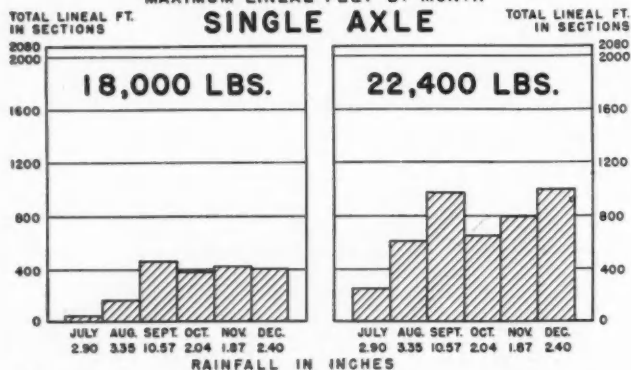


# "First Final" Report on

Summary of data presented at the 30th Annual Meeting



**PUMPING AT FREE EDGE**  
MAXIMUM LINEAL FEET BY MONTH  
SINGLE AXLE



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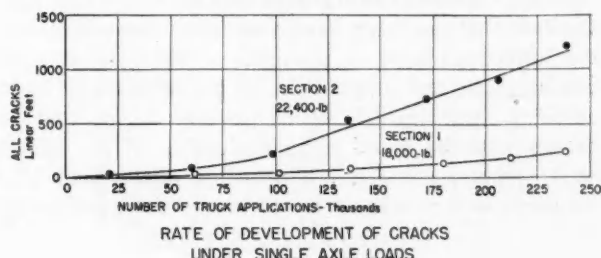
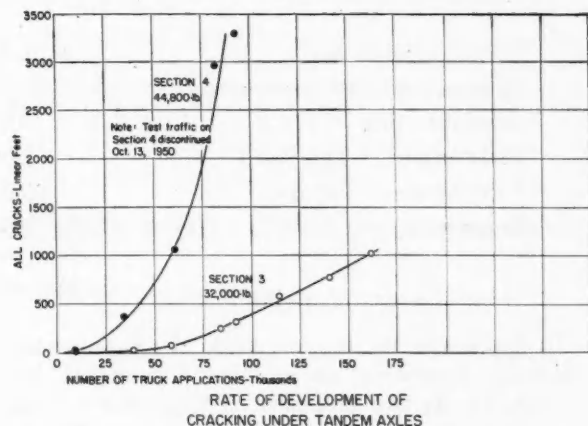
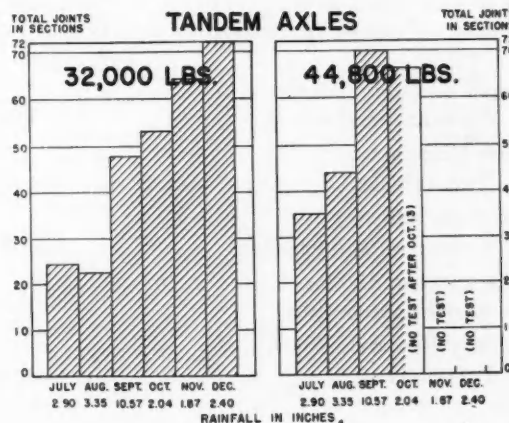
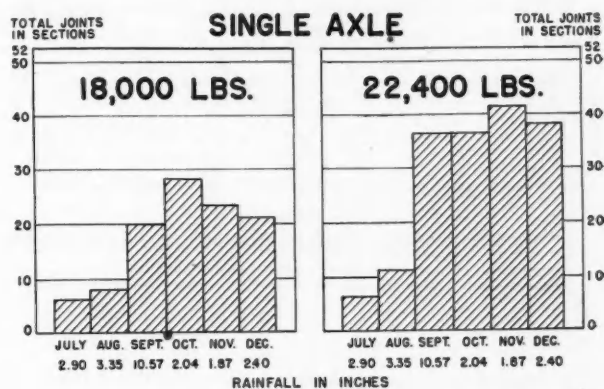
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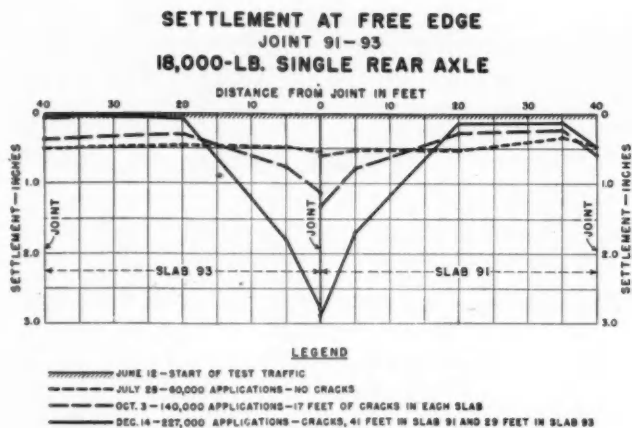
## PUMPING AT TRANSVERSE JOINTS

MAXIMUM NUMBER BY MONTH



# Maryland Road Test . . .

Continued from Page 65



way departments previously mentioned; the balance has been in contributions of personnel, services, equipment and material valued approximately as follows:

"Bureau of Public Roads	
Personnel and service	\$ 40,000
Truck Manufacturers	
Test vehicles	27,500
Petroleum Industry	
Grease, oil and gasoline	20,000
Department of Defense	
Aerial photography	3,100
Highway Research Board	
Personnel	4,400

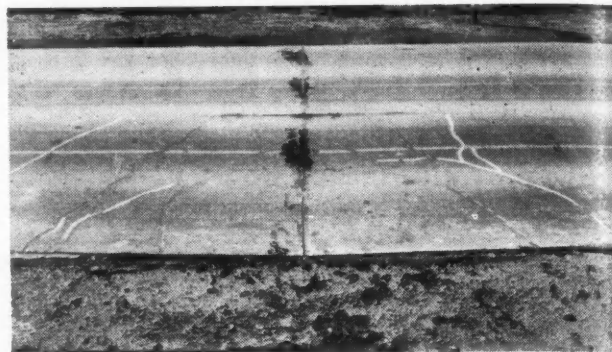
"An estimated distribution of the cash expenditures are:

"Testing Operations	\$ 52,450
By-pass road and turnarounds	50,900
Administration	9,050
Maintenance of Test Road	2,000
Final repair of test road	28,000
Reports	2,600

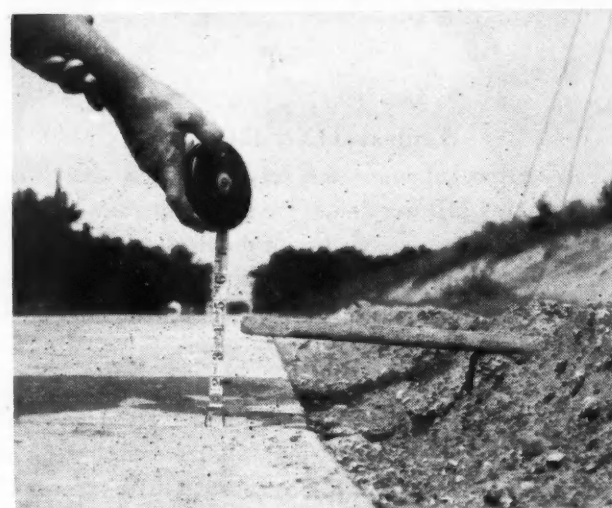
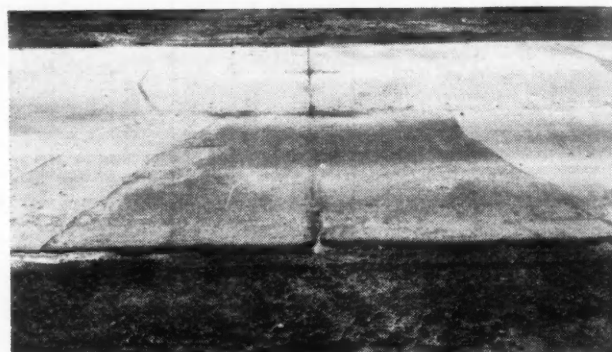
\$145,000."

In appraising the project itself, Mr. Crum made the following interesting observations: "I should like to mention briefly two aspects of this job that I think are especially noteworthy from an overall view. The first is the fact that we have here a striking demonstration of the interdependence of all units of the road structure: Surface, base and subgrade in the performance of its load carrying functions. It seems obvious to me that road design must be based upon evaluation of the effect of each component upon the behavior under load of the complete road structure. In any consideration of the vari-

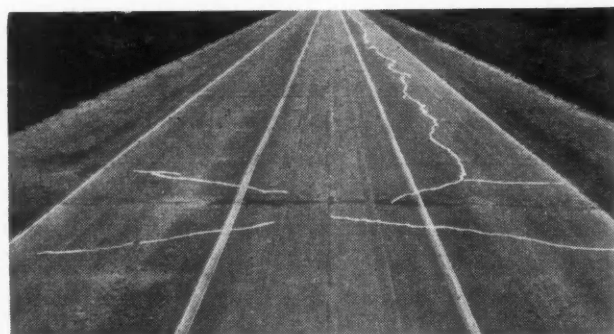
(TURN TO PAGE 156, PLEASE)



Site of Test's most famous pumper (See CCJ, Sept., 1950, Page 64, Fig. 1), Slabs No. 92 and 94, just before being patched on Sept. 15 and, BELOW, as it looked on Oct. 26



What the top illustration does not show is that the joint was depressed almost 4 in., making slabs unsafe for use. Graphic illustration of settlement at free edges of adjacent slabs, 91 and 93, is shown at top of column at left



Odd fact about cracks on Section 4 is that only on this lane longitudinal cracks showed up, as shown above right

# Buying Practice Survey

## Shows

### Fleets Lean to Jobber



SURVEY NO. 21

**Sequel to 1946 survey shows jobbers still leading source of supply for most truck and bus maintenance needs except rear axles and parts**

*Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal*

FIVE YEARS AGO, COMMERCIAL CAR JOURNAL surveyed 535 truck and bus fleets to determine their purchasing practices, particularly their principal maintenance supply items. This was shortly after the war and, doubtlessly, it reflected wartime practices.

On numerous occasions since that time, COMMERCIAL CAR JOURNAL had been asked to conduct a similar survey to determine what fleet buying practices were under normal competitive conditions and abundant supply. Because the purchase of replacement parts and supplies is so great a factor in fleet maintenance costs and efficiency, COMMERCIAL CAR JOURNAL put it up to the Board of Experts. With each of the recent surveys on the life of the principal parts of trucks and buses, a question relating to where those parts were purchased was asked. Replies were accumulated until the parts life series was concluded in the January issue. Data obtained now are shown in the accompanying tables.

Inasmuch as these tables are self-explanatory, little or no comment is deemed necessary. However, for the benefit of readers who may not have seen or may have forgotten the facts published in 1946 concerning fleet buying practices, the jobber then was

reported as the number one source of supply for the majority of parts and supplies used in fleet maintenance. Apparently, this practice has not changed. Fleets still seem to buy the majority of all their maintenance needs from jobbers.

As a matter of fact, jobbers appear to have made some gains in obtaining fleet business. The 1946 survey showed for example, that fleets bought 55.4 per cent of their accessory needs from jobbers. While it has not been practicable to work out a general or national average (due to some variations in the number of replies received), a glance at Table 2, in the jobber column under the Accessory heading will show quite a few greater averages. Brake linings, as another example, then were bought from jobbers by 56.2 per cent of all fleets reporting. Currently, the lowest vocational group average percentage of purchases from that source is 66 per cent.

These figures cover a total of 138 basic truck and bus parts. The data were obtained within approximately a year's time. This survey should, therefore, not only represent a sufficiently large number of parts to be representative but, also, be timely.

## Bus Maintenance Men Get 80% Engine Parts from Factory Branches

**Table 1**

VOCATIONAL GROUPS	Total Number of Fleets Reporting	ENGINE REPLACEMENT PARTS						IGNITION AND ELECTRICAL PARTS					
		JOBBER		DEALER		FACTORY BRANCH		JOBBER		DEALER		FACTORY BRANCH	
		Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)
For-Hire Carrier	35	10-80	34	5-75	26	5-80	40	10-100	67	0-100	20	0-60	13
Food Distribution	48	5-100	41	5-75	21	10-100	38	10-100	67	0-100	22	0-55	11
Government	39	2-100	40	10-95	48	5-75	12	2-100	51	10-100	33	10-60	16
Construction and Mining	7	30-86	54	10-70	31	10-60	15	50-95	76	5-40	17	0-25	7
Industrial	10	5-75	38	5-30	21	10-90	41	25-75	41	0-10	3	30-100	56
Petroleum	14	10-80	37	2-90	34	5-95	29	25-100	51	5-90	35	0-75	14
Public Utility	34	1-80	33	10-100	56	2-90	11	5-90	38	10-90	51	5-50	11
Retail Delivery	23	10-90	36	5-90	37	15-90	27	10-100	65	10-80	17	10-60	18
Truck Rental	5	35-90	66	5-65	31	0-10	3	50-80	72	20-40	21	10-20	7
Truck and Bus, Mixed	10	10-50	20			50-100	80	15-100	67	2-85	17	10-50	16

REPLACEMENT PARTS PURCHASING PRACTICES

## Dealers are the Secondary Supply Source for Front-End Parts

**Table 2**

VOCATIONAL GROUPS	Total Number of Fleets Reporting	ACCESSORIES						FRONT END PARTS					
		JOBBER		DEALER		FACTORY BRANCH		JOBBER		DEALER		FACTORY BRANCH	
		Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)
For-Hire Carrier	35	10-100	66	0-100	20	0-90	14	10-100	37	2-70	15	8-100	48
Food Distribution	48	50-100	72	0-100	20	0-75	8	5-100	36	2-100	33	5-100	31
Government	39	2-100	57	0-100	30	0-60	13	2-100	40	10-100	40	10-100	20
Construction and Mining	7	50-100	84	0-10	6	0-50	10	10-90	45	5-75	13	10-100	42
Industrial	10	0-75	28	0-70	17	25-100	55	40-90	46	15-100	17	10-100	37
Petroleum	14	30-100	82	0-25	5	0-70	13	8-85	69	15-90	21	10-82	10
Public Utility	34	5-100	50	5-100	40	0-50	10	10-95	37	15-100	51	5-100	12
Retail Delivery	23	10-100	75	0-90	15	0-100	5	5-100	22	10-100	38	10-95	40
Truck Rental	5	10-95	67	5-85	28	0-10	5	10-75	63	10-80	27	5-40	10
Truck and Bus, Mixed	10	0-100	70	0-100	20	0-25	10	10-80	69	5-20	29	10-100	2

## Maintenance Men Turn to Factory Branches for Rear Axle Parts

**Table 3**

VOCATIONAL GROUPS	Total Number of Fleets Reporting	REAR AXLE PARTS						SPRING ASSEMBLIES AND PARTS					
		JOBBER		DEALER		FACTORY BRANCH		JOBBER		DEALER		FACTORY BRANCH	
		Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)
For-Hire Carrier	35	5-100	30	0-90	14	8-100	56	10-100	65	15-100	20	0-90	15
Food Distribution	48	3-100	28	2-100	33	10-100	39	10-100	70	0-100	22	0-75	8
Government	39	2-100	33	15-100	43	10-100	24	2-100	49	10-100	36	0-100	15
Construction and Mining	7	5-90	34	10-95	27	10-100	39	50-90	59	10-100	33	0-25	8
Industrial	10	15-100	29	15-100	24	30-100	47	25-75	36	0-10	6	20-70	58
Petroleum	14	5-85	20	15-95	42	25-95	38	25-100	59	10-50	22	10-90	19
Public Utility	34	10-75	31	15-100	47	5-100	22	5-90	37	5-95	48	0-100	15
Retail Delivery	23	5-100	36	15-100	30	15-100	34	10-100	65	10-50	10	0-100	25
Truck Rental	5	10-75	23	25-100	41	1-90	36	50-80	50	0-80	41	0-25	9
Truck and Bus, Mixed	10	10-80	13	0-20	3	75-100	84	25-50	25	0-100	33	0-75	42

## Dealers are Secondary Source for Brake Parts, Except Linings

**Table 4**

VOCATIONAL GROUPS	Total Number of Fleets Reporting	BRAKE LININGS						OTHER BRAKE PARTS					
		JOBBER		DEALER		FACTORY BRANCH		JOBBER		DEALER		FACTORY BRANCH	
		Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)	Range (Per Cent of Purchases)	Average Per Cent (Median)
For-Hire Carrier	35	50-100	88	10-40	3	0-50	9	5-100	80	10-100	18	0-75	4
Food Distribution	48	40-100	85	2-50	6	5-60	9	2-100	83	10-100	11	5-75	6
Government	39	2-100	76	10-50	10	10-50	14	2-100	72	10-90	28	10-75	10
Construction and Mining	7			100	100			80-100	88	5-10	7	1-10	5
Industrial	10	30-100	67	1-100	14	60-70	19	60-100	76	1-10	17	1-10	7
Petroleum	14	75-100	94	1-25	4	2-10	2	75-100	93	1-25	7		
Public Utility	34	5-100	65	5-100	26	3-50	9	5-100	38	5-100	56	5-30	6
Retail Delivery	23	25-100	90	5-35	3	40-85	7	15-100	71	0-60	13	0-100	16
Truck Rental	5	50-100	85	1-50	12	2-10	3	50-100	85	0-50	12	0-50	3
Truck and Bus, Mixed	10	80-100	72			5-100	28	50-100	50	1-50	7	1-100	43

### Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIERS—Motor Freight Carriers in Local and Over-the-Road Service.

FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.

GOVERNMENT—State, County, Municipal, and Federal fleets.

CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.

INDUSTRIAL—Fleets operated by manufacturers.

PETROLEUM—Production and Distribution fleets.

PUBLIC UTILITY—Gas, Power, Water, and Telephone fleets.

RETAIL DELIVERY—(Other than Food Products) Dry Cleaning, Laundry, Newspaper, Coal, Ice, Department Store, Beverage fleets.

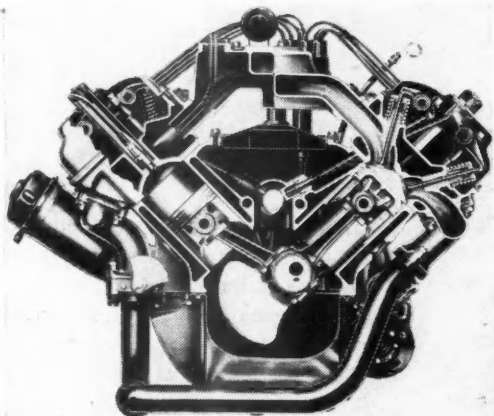
TRUCK RENTAL—Agencies leasing motor trucks.

TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.



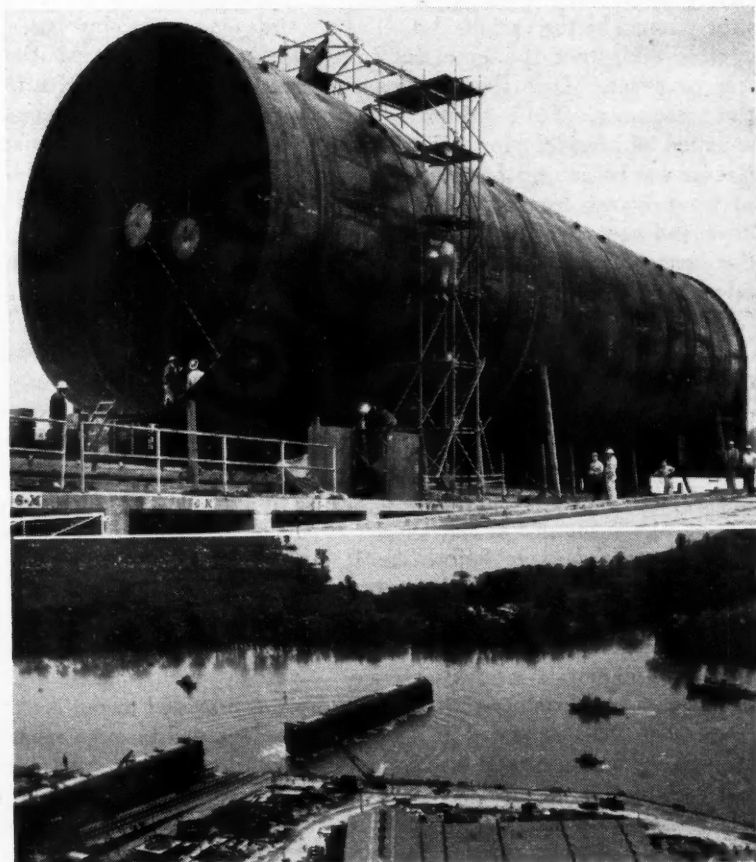
# PICK D pix OF INTEREST TO FLEETS

One unique method of telling about the "home town" is having a "chamber of commerce on wheels" pictured above. The sides of 79 trucks and trailers of Scheffler Forwarding Co. of Chicago depict the activities of the communities of Sheboygan, Kohler, and Sheboygan Falls, Wisc. The vehicles carry brightly colored tableaus proclaiming the products of manufacture, recreational attractions, and famous legends of this Wisconsin city. The idea has met with enthusiastic response from cities in all parts of the country



The 1951 Chrysler engine shown here has 180 horsepower output, hemispherical combustion chambers, overhead lateral valve arrangement and uses regular-grade gasoline. It's a good bet, though not official, that it may show up in a future truck model

The single-seat tractor used by Pacific Inter-mountain Express Co., Oakland, Calif., to move trailers in their terminal yards has a hydraulic fifth wheel controlled by the operator from his seat. The hostler may move trailers in the yard without cranking up landing gear. He may also connect and operate trailer brakes



After solving engineering problems of launching this huge 300-ft. steel tunnel tube, U. S. Steel's Consolidated Western Steel Corporation at Orange, Texas, began planning to make the nine sections seaworthy for a two-day trip via the Sabine River, along the Intercoastal Canal, through Galveston Bay to the Houston Ship Channel. Here it is to form part of the new highway system linking Baytown with LaPorte, Texas. A watertight bulkhead of 7/16 plate, was welded, with reinforcements across the open end. Stress and tension spiders may be seen in the interior

# Vehicle Operation and Design

## Reviewed by SAE

**Engineers urge precision testing and vehicle servicing, new ignition systems, improved fuels and oils, better refrigeration techniques as the next move toward efficient transportation**



President Dale Roeder

**V**OVER 6500 registrations were tallied up at the Annual Meeting of the Society of Automotive Engineers, Jan. 8-12, in Detroit, and the records show one of the most successful assemblies in the Society's history. Five days packed with technical sessions programmed by the various Activities covered the gamut of engineering for war or peace. Dale Roeder, executive engineer, Ford Motor Co., emerged as president for 1951. Mr. Roeder was beginning the second year of his two-year term as SAE Councilor and comes to the office due to the death of James E. Hale, who was scheduled to succeed President James C. Zeder.

On Wednesday evening, Under Secretary of the Army Archibald S. Alexander briefed a record banquet crowd on the effect of the country's present position on the automotive industry. Henry Ford II presided as master of ceremonies at the Dinner.

In a prepared paper before the T and M Activity, A. Walter Neumann, of The Willett Co., said that regular, planned servicing and inspections at 1500 and 6000-mile intervals reduce the rate of road failures to one in 6000 miles. He estimated at 16 per cent the reduction in total mechanical and maintenance labor.

Mr. Neumann said his company's integrated plan for precision testing,

adjustment, and servicing at regular operating intervals developed from a preventive maintenance survey which established basic standards for items needing attention, nature of services actually required, effective time and mileage intervals between inspections, and man-hours involved. He said the survey disclosed that vehicles were being over-serviced, since certain services were unnecessary at close intervals, and that requiring service mechanics to undertake non-essential work contributed to nonchalance and neglect.

The survey led to installation of scientific testing devices and a program for an "A" inspection service every five weeks, or 1500 miles, plus a more complete "B" inspection service every six months or 6000 miles. It was found that the "A" service need occupy only 1.5 man-hours, the "B" service 4.5 man-hours. There resulted a reduction of about 1069 man-hours of work monthly, with savings of \$27,000 in labor costs, of \$4,800 in parts costs, on an annual basis. Inspection forms, changed frequently with increased experience, were provided to outline the work to be done and to assure checking each task performed. Spot checks were made to make certain that every service requirement on the inspection forms properly was met.

### Body Insulation Tips

**I**N a paper entitled Refrigeration of Highway Transport Vehicles, V. M. Drew, of Fruehauf, provided practical points on design of reefers. There are numerous ways in which overall thermal efficiency of refrigerated bodies can be increased, he said. Bright surfaces reflect heat rays that a dull or dark surface would absorb, consequently, if the outer body panels of a commercial body are of highly polished metal, such as aluminum or stainless steel, and are left unpainted, the thermal efficiency of the unit will be increased to a considerable degree. It is believed that as high as 10 per cent advantage can be obtained under certain conditions, particularly in sunny climates.

The same holds true on interior panel surfaces but to a somewhat lesser degree; consequently, if you must paint the outer surface of a refrigerated body as a means of metallic protection, by all means paint them a light color, white preferably, or a cream yellow if desirable.

Another point well worthy of careful consideration is suitable provisions for keeping the insulation as dry as possible. Since it is impossible, in current practice, to construct a hermetically sealed chamber between inner and outer body walls, collection  
(TURN TO PAGE 180, PLEASE)

# Availability and Distribution of LP-Gas



Figures show distribution of the 3738 bulk plants over the U. S.

THE ratio of natural gas in our total petroleum has been increasing for a considerable period. Natural gas is potentially about twice as productive of LP-Gas as is crude oil when comparison is made on a weight or Btu basis and when some refinery LP-Gas is earmarked for butanizing gasoline. Thus, it is of considerable significance for the long term aspects of new markets for LP-Gas that natural gas may soon constitute 70 per cent of our petroleum reserves.

In 1949 554,000 barrels were produced per day, an increase of 256 per cent over the production of 155,000 barrels per day in 1940. The production of LP-Gas projected for 1960 is 1,585,000 barrels per day, which is an increase of 187 per cent over the 1949 production and amounts to an increase in production of over a million barrels per day. Although these are very large quantities it seems reasonable that such percentage increases, or even greater ones, can be achieved.

A rather detailed analysis of trends indicates that only half of the LP-Gas produced will be able to find markets in the presently well established uses for liquefied petroleum gas. The remainder, a volume equivalent to about 20 per cent of the gaso-

by R. C. Alden and\*  
F. E. Selim

Phillips Petroleum Co.

line production, will be seeking new markets.

For long range considerations it is useful to look at the amount of the various fuels in our petroleum reserves. Based on calculations similar to those involved in earlier figures, it is estimated that for every gallon of gasoline in our reserves of natural gas, natural gas liquids and crude oil there was 0.48 gallon of LP-Gas in 1931, 0.61 in 1940, 0.81 in 1949. With this trend continuing there may soon be a gallon of LP-Gas for every gallon of gasoline in our reserves.

## Distribution

THE next phase of the question is that of distribution. As in the case of crude oil about 55 per cent of our reserves of natural gas are "deep in the heart of Texas." Actually, except for the unbalance in California, the reserves of natural gas are, if anything, slightly closer to the large points of consumption than are the reserves of crude oil.

Tank car and tank truck transportation has reached a high state of perfection. The number of LP-Gas tank

cars is increasing very rapidly. There were about 4200 in 1946 and about 10,000 now, with an estimated 2500 on order. It is estimated that one tank car is needed for the railroad transportation of each 150,000 gallons per year of LP-Gas.

## Bulk Plant Distribution

THERE are approximately 3738 distributor bulk plants for the distribution of LP-Gas. It is the business of the companies operating these plants to distribute LP-Gas, and their plants are equipped to handle this sort of business. The fact that the majority of them are not equipped today to fill motor fuel tanks indicates only that the bulk of them have not yet had a demand for this type of service and therefore there has been no necessity for them to make the slight additional investment in equipment needed to handle this type of business.

An indication of the cost brought about by the need for pressure storage comes from past experience, which indicates that LP-Gas storage costs to the consumer run between  $\frac{1}{2}\phi$  and  $1\frac{1}{2}\phi$  per gallon throughput, depending upon the size storage installed and the volume of fuel used. These costs are based on short amortization periods. There is, of course, a cost for storage facilities for other liquid fuels.

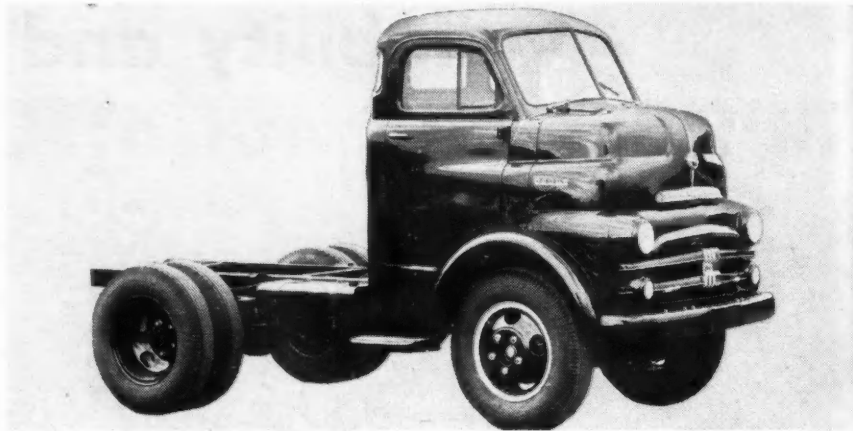
As a matter of fact, just as it is going to require a lot of doing to develop suitable engine-equipment combinations for LP-Gas, it is also going to require a lot of doing to achieve adequate distribution for LP-Gas. It is, therefore, a foregone conclusion that the economics of distribution will dictate that LP-Gas will be used first as a direct motor fuel either by large users or in cases where other markets for LP-Gas have already justified the establishment of distribution and storage facilities. The use of LP-Gas as a direct motor fuel in itinerant highway equipment is probably quite a distance in the future except in special circumstances.

\* Excerpted from a paper presented at the SAE Annual Meeting, Detroit, Mich.



*Greater driver comfort and repositioned steering wheel are B-3 features*

*The 1/2-ton panel has lower loading height due to redesigned rear springs*



*The C.O.E. tractor pictured here has an increased GVW to 18,250 and GCW to 32,000 lbs, with improved brakes, easier steering, and stronger rear axles*

# 1951 Dodge B-3

## Feature Increased Power

**Changes and improvements in the B-3 series include more greater payload capacity, higher horsepower rating, and**

**V**THE NEW B-3 LINE OF DODGE TRUCKS for 1951 have many features considered by the manufacturer to be great improvements. Most models, for example, have increased horsepower and torque among other engine improvements including higher compression ratios. The larger models have twin carburetion, and increased GVW and GCW ratings. In general, all models have provided for improved brakes, newly designed shock absorbers, easier handling, and greater driver comfort, among other features.

Basic details of the new B-3 line, including school bus chassis, are shown in Table 1. GVW ratings in the new series range from 4250 to 40,

000 lb and GCW ratings up to 60,000 lb.

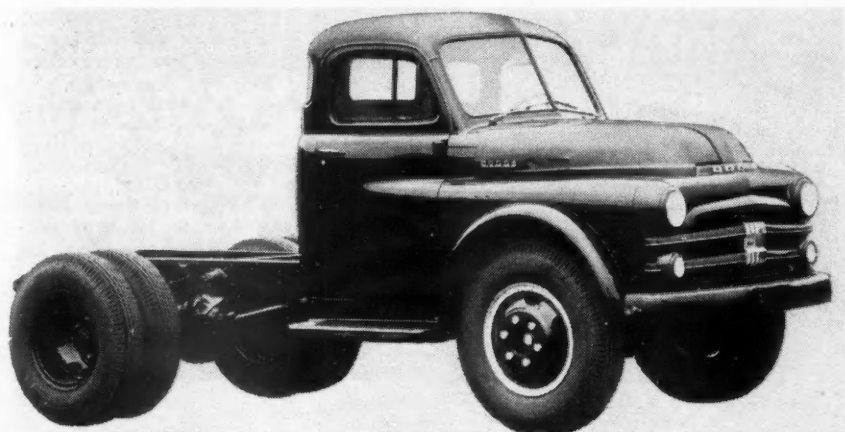
From the standpoint of mechanical improvement, the biggest story is found in engine changes leading to a general increase in output. Specific data may be found in Table II.

Considering engines, one of the changes is a increase in governor setting to permit an increase in engine speed on most models, thus providing higher road speeds where load conditions permit. Molded rubber spark plug covers give moisture proof ignition. Ten-thousand-ohm Resistor spark plugs are "hotter" on some models for better low speed operation and less fouling. Starters have increased torque for better cold weather

starting. Fuel pump capacity has been increased with lower pressures to provide smoother operation.

On the engine for B and C models a new narrow wedge type fan belt replaces the conventional belt, giving longer life and quieter operation. In addition, the radiator by-pass has been removed from the top of the water pump and is made integral with the pump. A 45-amp generator is standard equipment. Generators of 35-, 50-, and 55-amp with low cut in speeds are available as optional equipment.

Engines for F, G, H, and HH models now have intake valves of chrome-silicon steel, said to be harder and more wear resistant. On H and HH



Model K (2½-ton) tractor shown here has a GVW of 18,000, a GCW rating of 32,000 pounds, a net brake horsepower of 103, and 194 foot pounds net torque

A 20% increase in HP in the TA model is produced by this new 331

## Models and Capacity

driver comfort and safety,  
many new chassis features

models the exhaust system has been enlarged to reduce both back pressure and power loss. On J and K engines, a brass water distributing tube in the cylinder block replaces the terne plate tube previously used.

The engines for R, T, and V models now are produced with twin carburetion and twin exhaust system, carrying out the features first proved in the Y engine some time ago. However, where the R engine is used in the RS-229 school bus chassis, the single-carburetor set-up is continued. Twin carburetion aids in increasing power output, permits higher average road speed, improves hill-climbing ability and economy. A further ad-

(TURN TO PAGE 124, PLEASE)

Table I. Condensed Chassis Specifications

Models B-3 Series	Nominal Rating (tons)	Wheelbase Range (in.)	G.V.W. Range (lb.)	Increase in G.V.W.	G.C.W. (lb.)	Increase in G.C.W.
B, B-3	1½	108	4,250 to 4,850			
C	¾	116	5,800			
D	1	116, 126	5,600 to 8,000			
PW	1	126	7,600 to 9,500	800		
F, FA	1½	128 to 170	7,000 to 13,500		24,000	
G, GA	1½	128 to 192	13,500 to 14,500		26,000	
GM, GMA (c.o.e.)	1½	107 to 161	10,750 to 14,750		26,000	
H, HA	1½	128 to 192	16,000		28,000	
HM, HMA (c.o.e.)	1½	107 to 161	16,250		28,000	
HH, HHA	2	128 to 192	16,000		28,000	
HHM, HHMA (c.o.e.)	2	107 to 161	16,250		28,000	
J, JA	2½	128 to 212	10,500 to 17,000		30,000	1,000
JM, JMA (c.o.e.)	2½	107 to 161	10,750 to 17,250		30,000	1,000
K, KA	2½	128 to 212	18,000	500	32,000	1,000
KM, KMA (c.o.e.)	2½	107 to 161	18,250	500	32,000	1,000
R, RA	2¾	130 to 229	14,500 to 19,000		36,000	1,000
T, TA	3	130 to 190	17,500 to 22,000	1,000	40,000	3,000
V, VA	3½	130 to 190	24,000	1,000	45,000	5,000
VX (6 Wheel)	3½	154 to 190	35,000		50,000	
Y, YA	4	130 to 190	24,000 to 28,000		50,000	
YX (6 Wheel)	4	154 to 190	40,000		60,000	
DU*		102 to 117	6,200 to 7,900			
DUF*		102 to 117	6,200 to 7,900			
EU*		102 to 142	8,000 to 10,100			
EUF*		102 to 142	8,000 to 10,100			
FS School Bus	1½	152 to 170	10,800 to 13,000			
GS School Bus	1½	192	14,650			
HHS School Bus	2	192	15,500			
JS School Bus	2½	212	16,125 to 17,000			
RS School Bus	2¾	229	18,075 to 19,000			

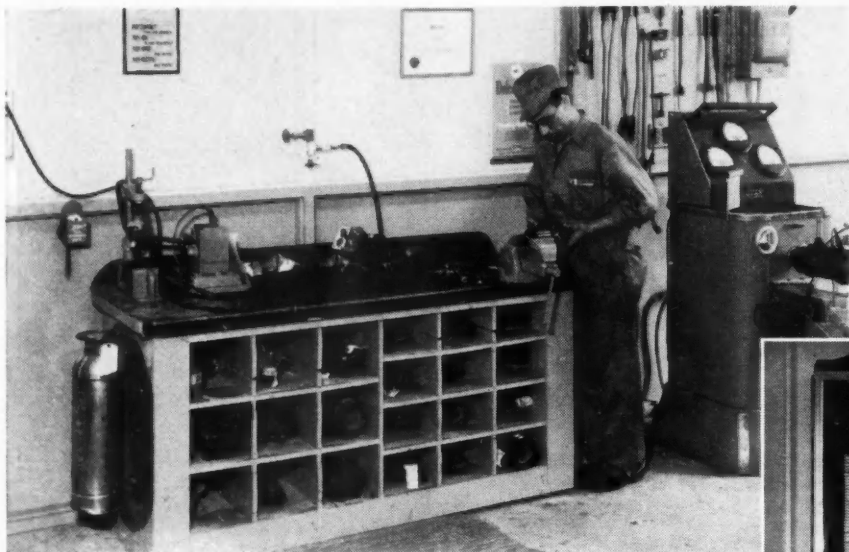
\* Route Van bodies carry B-3 designation.

Table II. Condensed Engine Specifications

Chassis Series	Displacement (cu. in.)	Comp. Ratio	Net B.H.P.	Increase Net H.P.	Net Torque lb. ft.	Increase Net Torque
B, C (½, ¾-ton)	218	7 to 1	86	4	170	5
Power-Wagon	230	6.7 to 1	82	4	177	
D (1-ton)	230	7 to 1	89	6	181	2
DU, EU (Route-Van)	230	7 to 1	87.5	4.5	180	2
F, G (1½-ton)	236	6.6 to 1	93	2	184	4
H, HH (1½, 2-ton)	236	6.6 to 1	97.5	6.5	186	6
J, K (2½-ton)	250	6.6 to 1	103	5	194	2
R, (2¾-ton)	306*	6.4 to 1	125.5	19.5	243	10
T, V, VX (3, 3½-ton)	331*	6.4 to 1	134.5	23	269	12
Y, YX (4-ton)	337*	6.5 to 1	140		319	

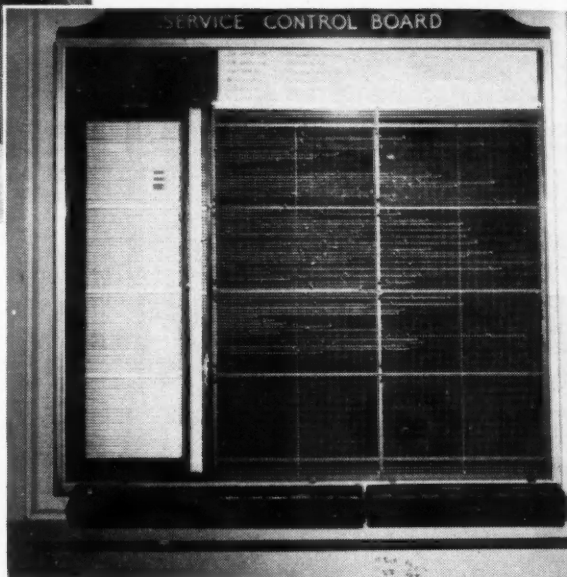
\* Twin Carburetion and Exhaust.

† Single Carburetion on "RS" school bus.



◀ **FIG. 1:** Automotive electrical parts, carburetors, etc., are repaired by one of the staff mechanics rather than sending the parts to a commercial rebuilder

▼ **FIG. 2:** The Service Control Board which is the key to the PM system used by Labatt. Regular mileage progress of each truck in service is followed by a peg and string system



# Labatt's Maintenance

## Averages 1.5¢ Per Ton-Mile

**Modern shop and equipment, an efficient staff  
plus a thorough PM program keeps cost within  
monthly allowance of 2.5 cents per ton-mile**

**By R. L. Morris**  
Superintendent of Transportation

**and M. C. Wilkie**  
Service Manager

John Labatt Ltd., London, Ont.

▼ **HAVING A NEW**, modern-equipped garage (see CCJ, January, Page 52) does not eliminate the problem of providing proper fleet maintenance within a cost budget. As a matter of fact, it behooves us to show a lower cost than that prior to moving into our new quarters. Most of our new shop equipment was purchased with the definite under-

standing that the various maintenance operations would not only be of better quality but that there would be appreciable time savings. Now, it is up to us to prove it. It isn't too difficult.

Every month our accounting department sends us an itemized vehicle maintenance cost sheet. This sheet lists every vehicle, the number

of days it has been in operation, the number of trips made and tonnage carried. On the maintenance side, it shows the number of hours each vehicle was in the shop, the type of maintenance it received and our costs for that service, the amount of gasoline and oil consumed and the cost, and so on. Finally, the cost per ton-mile is shown for every vehicle.

### Ton-Mile Figure Checked

**EVERY** month when we receive this itemized cost sheet, we immediately turn to the ton-mile cost figures. If the cost should reach 2 cents or over, we know we are going to have some explaining to do, as this figure exceeds our budget. However, seldom do we find ourselves in this position. Normally, our maintenance cost for the entire fleet—comprising 113 tractor-semis, local deliveries, etc., which operate around 5000 miles a month—averages 1.5 cents per ton-mile.

Because we keep in close touch with modern fleet maintenance practice (TURN TO PAGE 140, PLEASE)

# Bendix Products

CREATIVE ENGINEERING

GEARED TO QUANTITY PRODUCTION

## HYDROVAC

THE POWER BRAKE PREFERRED ABOVE ALL OTHERS!

More than two million installations are certainly undeniable proof of any product's popularity. In the field of power braking it means that one—the Bendix Hydrovac®—is preferred above all others. Such overwhelming acceptance by the men who service, drive and own the nation's trucks is impressive enough in itself. It further emphasizes, however, that dealers can recommend Hydrovac

with every assurance of complete customer satisfaction and that truck operators, who buy Hydrovac equipped vehicles, do so with the knowledge that they are getting the best proven power brake on the market. Write the factory direct for detailed information about Hydrovac—the undisputed leader in power braking—or about other Bendix automotive products.

\*REG. U.S. PAT. OFF.

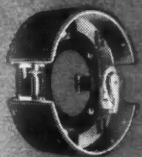
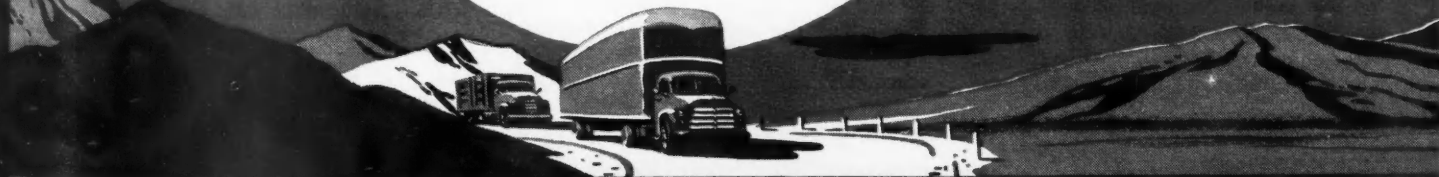
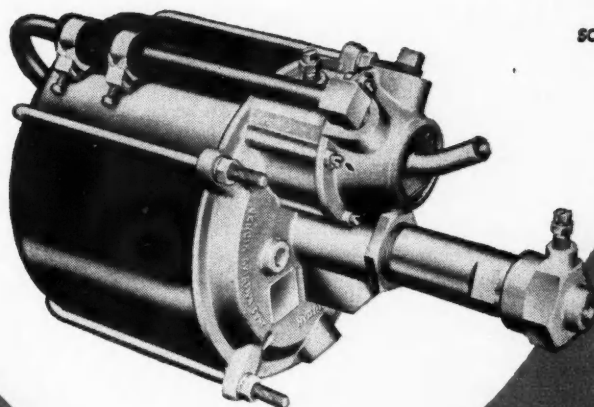
BENDIX PRODUCTS

DIVISION of

SOUTH BEND 20, INDIANA



Export Sales: Bendix International Division,  
72 Fifth Avenue, New York, N. Y.



Condemner  
Emergency  
and Parking Brake



E-K® Power Braking  
System for Cargo Trailers



Bendix Hydraulic  
Power Steering

BUILDERS  
OF THE BASICS  
OF BETTER  
MOTOR VEHICLES



Bendix® Automatic  
Clutch and Gear Shift  
Control Systems



Bendix Vacuum-  
Power Gear Shifter



Bendix® Brakes for  
Buses, Trucks, and  
Passenger Cars

# FREE PUBLICATIONS

## FOR YOUR CONVENIENCE USE THIS POSTCARD

A selected list of the latest literature —  
catalogs, pamphlets, charts—chosen to help  
fleetmen improve operation and maintenance.

### L63. Rubber Data

The use of rubber for chassis suspension systems, flexible engine mountings, bearings, spring assemblies and other parts in some of the new European automobiles, busses and motorcycles are described and illustrated in a new 96-page booklet now available.

"Rubber Developments" is available for the writing of L63 on the postcard.

### L64. Lubrication Research

New Horizons in Grease Research is the title of this 12-page publication now available to the fleet field. In this booklet the author has outlined a story on grease research, showing the development of tools and instruments, the equipment used in studying lubricants and the manner in which improvements in greases are discovered. Photographs portray magnified views of grease structure and outline the breakdown of bearing surfaces under stress. While somewhat technical in nature, this information should be received enthusiastically by men in the fleets who are interested in the field of lubrication.

Write L64 on the postcard for a free copy.

### L65. Valve Data

Fleet operators who wish to secure

additional information on valves and tappet clearances will be interested in this new 8-page booklet featuring a story on the "Effect of Operating Variables on Tappet Clearance." Written by a project engineer of Eaton Mfg. Co., this article points out how variables in clearance are responsible for such engine weaknesses as valve breakage, cam or tappet failures, poor engine idle, valve burning and guttering, noisy valve gear. Results of studies on three different engines are included in the data.

It was found that changes in lash are unpredictable because of the many complex variables affecting them. Water jacket temperature, among other factors, is one of the most important causes of such changes in tappet clearances. According to the author the use of hydraulic valve lifters is the most satisfactory way to eliminate the many problems of valve lash.

This booklet is yours for the asking. Just write L65 on the postcard for your copy.

### L66. Employee Pensions

An interesting and informative new report, "Employee Pensions," issued by C. A. Macauley and Associates, points out that, from the standpoint of the average business, pensions are not of

necessity an unmitigated evil. It states, "Provided they are properly designed and properly sold to the employees, pension plans frequently bring increased profits." It lists five potential benefits of pension plans, but also has a section entitled "Pensions Can Be Disastrous," pointing out the ways in which pensions may be harmful.

The report predicts that the future will see pensions demanded by labor in ever-increasing numbers, and contends that it is entirely unnecessary and most unwise for a company to be unprepared when—not if—the demand for a pension plan arises.

For a copy write L66 on the accompanying postcard.

### L67. Apprenticeship Study

A pocket-size pamphlet—three-minute reading time—designed especially for employers, outlines ten ways in which apprenticeship nets worthwhile returns. Listed in the pamphlet are other publications on the subject of apprenticeship which may be obtained from the Bureau of Apprenticeship, U. S. Department of Labor. Also listed are the regional offices of this bureau and State apprenticeship agencies.

Copies of this pamphlet may be obtained free of charge by writing L67 on the free postcard.

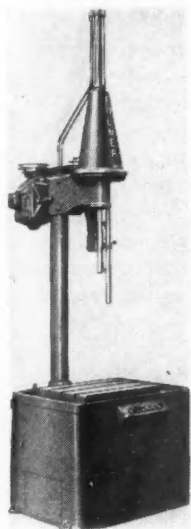
### L68. Suspension

The current issue of "Rubber Developments," features an article on a new form of vehicle suspension employing rubber in torsional shear. The suspension is designed on the toggle-link principle, employing large diameter circular rubber bushings to make the most efficient use of the qualities of rubber and properties of being able to bond it to the metal.

The article is illustrated with diagrams and pictures. It also includes a diagram showing the comparative deflection ranges of the leaf and rubber springs in loaded and unloaded conditions. A copy is available for the writing of L68 on the postcard.

# NEW PRODUCTS

## P115. Honing Machine



C. Allen Fulmer Company, Cincinnati, Ohio, has brought out a small honing machine with a working stroke of 15 in. and a capacity from  $\frac{1}{4}$  in. to over 4 in. This machine has a  $1\frac{1}{4}$  in. diam spindle driven by a 3 hp motor with three spindle speeds available. Reciprocation is hydraulic with a 2-hp motor driving a Vickers pump with Vickers controls that permit reciprocating speeds from one to 70 ft per min. The spindle and honing tools are hydraulically counter-balanced.

Standard height under the spindle nose is 40 in., with different heights optional. For the customer who specializes on automotive cylinder honing, a special table with a built-in indexing cylinder holding fixture is available.

## P116. Hand Sander

"Five to ten times faster than hand sanding" is the claim of the Clarke Sanding Machine Company, Muskegon, Mich., in announcing the new Clarke "Smoothie" sander. Primarily designed for light factory production work, it also has wide application among repairmen, contractors, as well as use in auto body and paint shops, garages and general maintenance work.

## P117. Oil Filter Gasket

One feature of the wing-nut oil filter manufactured by Purolator Products Inc., Rahway, N. J., is a permanent sealing cover gasket which can be reused if desired.

**FOR YOUR CONVENIENCE USE THIS POSTCARD**

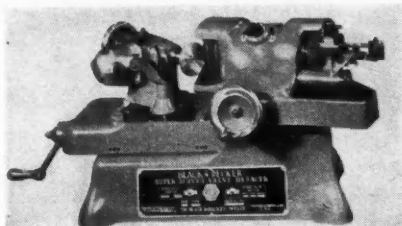
Illustrating and reviewing newest developments

in parts, accessories, shop equipment and tools.

For more information use the attached postcard.

## P118. Valve Refacer

A valve refacer has been introduced by The Black & Decker Mfg. Co., Towson, Md. The outstanding feature of the new refacer is that it will traverse grind all valves from 0 deg to 90 deg. No attachments are needed and plunge grinding is eliminated. It handles valve stems from  $\frac{9}{32}$  in. to  $\frac{11}{16}$  in. and has a valve head capacity up to 4 in. diam. The wheel head is at a 20 deg offset permitting traverse grinding of any angle valve face including the flat type.



The work head is hypoid gear driven eliminating belts and the possibility of vibration. The machine is supplied with two collets (capacity  $\frac{9}{32}$  in. to  $\frac{9}{16}$  in. and  $\frac{1}{2}$  in. to  $\frac{11}{16}$  in.) and a hand wheel on the back of the work head has a double lead thread for giving quick clamp action on the stem in the collet.

## P119. Alignment Gage

A wheel centering and toe-in gage of new design has been announced by Bee Line Co., Davenport, Iowa. Bee Line also announces a floor type turning aligner which may be set up quickly wherever floor space is available.

## P120. For Metal Fires

A pressurized extinguisher designed for metal fires has been developed by Ansul Chemical Co. and is effective on fires in magnesium, sodium, potassium, zinc, powdered aluminum, etc.

Dry powder, the extinguishing agent, fuses and forms an air-excluding crust over the burning metal. Without oxygen, the fire goes out. Small particle size of the powder makes possible its use in a gas-pressure type extinguisher. The new extinguishing agent does not conduct electricity.

## P121. Transfer Pump

The Lincoln Engineering Company, St. Louis, announces the addition of a new air-operated Transfer Pump. This new Speed-Flo Transfer Pump, Model 82230, transfers fluids at 22 gal per min. It empties a 55-gal drum of S.A.E. 30 oil in slightly over 2 min.

(TURN TO NEXT PAGE, PLEASE)

# New Product Descriptions

Continued from Page 77

## P122. Engine Parts Cleaner

A cleaning compound, for removal of carbon and sludge from internal combustion engines, has been announced by The DuBois Company, Cincinnati, Ohio. A blend of chlorinated and phenolic solvents with emulsifiers, the new cleaner is said to give rapid penetration, remove baked-on carbon or sludge deposits. It can be used on aluminum, magnesium, copper, brass, pot metals, etc.

## P123. 150-Pound Dry Extinguisher

Walter Kidde & Company, Inc., announces a wheeled dry chemical fire extinguisher with 150-lb powder capacity, for combating flammable liquid (Class B) and electrical (Class C) fires.



The new extinguisher has several features that make it easy to handle. Mounted on two wheels, and balanced to permit one-man mobility, are two large upright steel cylinders. The larger cylinder contains 150 lb of dry chemical, the smaller cylinder holds nitrogen. To operate, a valve on top of the nitrogen cylinder is opened. This admits the nitrogen to the powder chamber through a normally-open valve, and pressurizes the dry chemical for discharge. A pre-set regulator maintains constant pressure within the dry chemical cylinder during discharge.

## P124. Drum Clamp

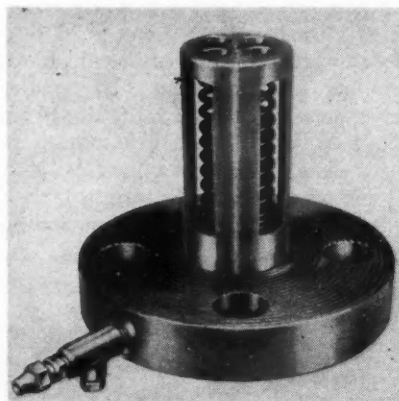
For lifting cylindrical objects by fork trucks is the purpose of a drum clamp being made by Baker Industrial

Truck Div., Baker Raulang Co., Cleveland. Baker says that drums may now be handled either individually or as unit loads on pallets. Adjustable from 32 in. inside spacing to 19 in. the two forks move simultaneously either in or out by means of separate hydraulic cylinders. Two shoes which slip over and are pinned to standard pallet forks, hold curved, rubber faced grab plates. An accumulator keeps hydraulic pressure constant for safety in moving of drums.

## P125. Safety Valve

Shand & Jurs Company, Berkeley, Calif., petroleum equipment manufacturers have announced that their new Internal Safety Valves for Liquefied Petroleum tank discharging have been listed by Underwriters Laboratories, Inc.

These L.P.G. internal safety valves are similar in design to those used for discharging truck and storage tanks containing petroleum products under normal pressure. The valve is normally held closed by spring tension and can be opened only by hydraulic pressure supplied by the operator. When hydraulic pressure is released, any open valve will close tightly and instantly.

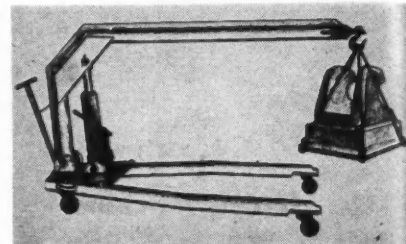


Should an accident tear away discharge lines or hydraulic fluid lines, pressure holding any valve open is automatically released, allowing that valve to close. If fire should break out near the L.P.G. tank, tiny fusible plugs inserted in the hydraulic lines melt, releasing pressure which in turn closes any open valve.

## P126. Portable Hoist

A new portable hydraulic hoist permitting one man to move and handle

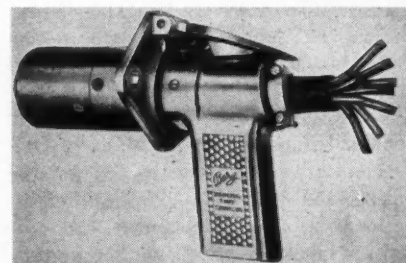
vehicle power plants, heavy castings and other equipment up to 5000 lb in weight, has been introduced by South Chester Corp., Philadelphia. The design of the "Latch" hoist permits getting into places inaccessible to overhead equipment. Tracks and cranes are eliminated and alignments to a



fraction of an inch are made possible by the sensitive hydraulically controlled boom. Loads can be raised to a height of 8 ft 6 in. Ball bearing casters permit easy movement, according to the manufacturers. Operated without special skill and with no danger from swinging and shifting loads, the hoist is said to be suitable for most standard operations in factories, repair and maintenance shops.

## P127. Electrical Connector

The Berg Mfg. & Sales Co. is producing a new connector for tractors and trailers which is said to have



many advantages in addition to meeting all ATA specifications. These features include a snap-in insert which eliminates the need for rewiring when replacing the female terminal of the cable. The principle of the insert is similar to sealed-beam headlights. Then there is a pistol grip on the male connector which simplifies coupling and uncoupling. The male unit is held in place by a twist-lock arrangement. Replacement parts will be available for all sections of the connector.

## P128. Carburetor Cleaner

A carburetor, fuel pump and small parts cleaner, Carburex—claimed to be unusually fast and efficient—has been announced by the DuBois Company, Cincinnati, Ohio.

(TURN TO PAGE 176, PLEASE)

*Keep rolling...with big savings  
...get a Studebaker truck!*



## A full measure of solid value!

Big visibility cab with head room, hip room, leg room for three . . . Fully enclosed safety steps . . . Adjustable seat with "finger-tip" control . . . Adjusto-Air seat cushion . . . Two foot-controlled floor ventilators . . . Two built-in window wings . . . Dual windshield wipers . . . Two arm rests and sun visors . . . Cab light with hand and automatic door switches . . . Rheostat controlled instrument lights . . . Automatic "hold-open" door stops . . . Tight-gripping rotary door latches . . . Metal-lined door panels . . . Metal dash compartment . . . Automatic spark control and octane selector . . . Extra strong K-member front frame reinforcement . . . Full box-section cross members . . . Rugged, easy-riding springs . . . Shock-proof cross link steering with variable-ratio for easier turn-arounds and parking . . . Two great Studebaker-built truck engines—the Econ-o-miser—the high torque Power-Plus!



## Everything's easy to get at!

No standing on a box is necessary in order to work on engine or ignition of a Studebaker truck. You just "lift the hood" and reach right in. This is true, even of the instrument panel wiring. It's readily accessible—on the engine side of the cowl.

## STUDEBAKER TRUCKS

NOTED FOR LOW COST OPERATION  
The Studebaker Corporation, South Bend 27, Indiana, U. S. A.

# New Truck Registrations by Makes by States\*

STATE		Auto-car	Brook-way	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	Inter-national	Ken-worth	Mack	Pon-tiac	Reo	Stor-ling	Stude-baker	White	Willis	All Others	Total
Alabama	Nov.			637	4	1	212		554		221	97		20		4		100	31	38		1,919
	11 Mos.	6		8920	33	20	1677	4	6912		2010	1571		172	13	21		947	209	430	15	22,980
Arizona	Nov.	2		231	2	1	49	1	133		63	12						22	2	20	2	541
	11 Mos.	2		2392	8	12	496	7	1781	3	681	421	7	15	12	6	3	319	33	258	14	6,468
Arkansas	Nov.			590	1		193		466		169	38						59	5	26	1	1,569
	11 Mos.			8894	27	2	1879	2	6460	1	2170	1453		35	22	36		1117	53	421	10	22,582
California	Nov.	19		1557	21	30	736	6	1262	8	609	184	22	19	7	9	4	286	47	187	25	5,040
	11 Mos.	123	8	23181	331	453	5492	33	16389	45	6274	4142	194	245	56	121	78	2864	470	1425	299	62,323
Colorado	Nov.	1		504	5		119		276	1	81	32		4				48	9	40	3	1,130
	11 Mos.	1		5910	46	48	1015	9	3519	7	1109	1162	22	51	5	30		709	52	473	47	14,215
Connecticut	Nov.	3	3	247	4	4	78	7	158		57	46		21				32	18	31	2	712
	11 Mos.	44	55	2783	85	106	791	76	2109	2	634	808		208	19	49	9	350	144	268	24	8,984
Delaware	Nov.	1		70			14		67		27	6						12	2	6	1	212
	11 Mos.	11	10	1087	15	4	205		878		209	265		7	13	5		99	21	52	12	2,893
Dist. of Col.	Nov.	1	2	141	2	11	33		65		21	9						3	3	5		297
	11 Mos.	15	6	1142	19	70	241	10	708		254	242		32	8	20		39	26	51	4	2,886
Florida	Nov.	2		575	5	13	200	1	474		124	72		3				60	14	87	8	1,643
	11 Mos.	10	2	7678	110	74	2116	11	6590		1416	1416		272	19	96	1	1267	183	922	77	22,264
Georgia	Nov.	1		810	1	2	195		608		165	60						66	13	33		1,983
	11 Mos.	3	4	11879	41	26	2677	31	10024	1	2277	2227		188	14	91	1	1495	252	436	19	31,787
Idaho	Nov.			225	1		60		168		90	26	1					37	2	25	6	650
	11 Mos.			2765	65	4	516	12	1783	3	976	751	51	32	4	29	4	440	38	433	23	7,939
Illinois	Nov.	5		1306	44	18	334	1	680		258	266		12				90	46	59	10	3,358
	11 Mos.	72	6	16829	545	168	4074	25	11902	6	3139	5253		243	59	136	4	1629	547	580	84	45,301
Indiana	Nov.	1		750	6		224		769		169	119		6				70	34	23	3	2,200
	11 Mos.	16	4	8946	96	86	2087	26	7575	2	1692	2957		77	26	92		1393	393	398	48	26,318
Iowa	Nov.			664	4		155		503		87	90		9	3	5		49	13	18	3	1,808
	11 Mos.	2		9641	110	49	1943	3	7569		1355	2959		80	21	56		929	157	298	17	25,389
Kansas	Nov.			631	4	3	120		472		128	78						55	7	31		1,529
	11 Mos.			8101	58	24	1215	7	5745	1	1580	2152		20	31	51		738	76	329	5	20,133
Kentucky	Nov.			637	6	2	134	3	415		167	68		2	2			45	6	63		1,542
	11 Mos.	4		8937	78	44	1496	19	6267		2282	1913		31	35	26	1	777	84	743	7	22,744
Louisiana	Nov.			473	7	4	94	1	410		123	54						45	7	39		1,257
	11 Mos.	7		7127	97	8	1377	4	6214	1	1902	1320		31	16	17		979	94	395	19	19,588
Maine	Nov.	1		121	1		40		58		30	12		2	1			9	6	5		288
	11 Mos.	13	19	2365	7	6	565	13	1399		734	760		74	18	10	1	303	49	208	6	8,550
Maryland	Nov.	11		277	1	11	142	3	250		93	59						23	12	12		699
	11 Mos.	19	77	4205	44	88	1173	61	3327	1	779	1077		114	11	50	4	307	155	140	15	11,647
Massachusetts	Nov.	14	13	403	18	11	202	5	342	3	124	71		36	1	18	3	42	40	27	5	1,376
	11 Mos.	226	150	5260	188	149	1936	46	4063	3	1225	1594		364	63	141	75	760	387	286	30	16,947
Michigan	Nov.	2		1030	3	18	315	19	1032		184	42		11	4	11		46	11	34	1	2,763
	11 Mos.	29	1	16422	121	268	3624	127	14827	2	2729	2518		213	30	245		1014	238	392	25	42,823
Minnesota	Nov.			480	3	1	128		325		72	70		2				56	14	24	2	1,180
	11 Mos.	4		8697	107	99	1864	14	6852	13	1465	2863	35	83	29	35		1489	140	327	38	24,153
Mississippi	Nov.	1		772			165		550		244	114		1				62	5	39		1,954
	11 Mos.	2		7748	14	1	1423	4	5564	1	2271	1393		30	19	15		833	61	313	8	19,700
Missouri	Nov.			1032	6	7	255		728		254	100		3				64	39	32		2,522
	11 Mos.	6		14995	85	100	2725	2	9319	2	3193	2769		116	21	72		1301	380	465	36	35,890
Montana	Nov.			327	4	1	65	1	190		73	40	3					27	1	42		774
	11 Mos.			3526	46	3	643	11	2165	3	758	1099	24	9	8	36		485	18	643	10	9,487
Nebraska	Nov.			533	8	1	104		311	1	107	67		6				47	13	28	2	1,233
	11 Mos.			6429	199	19	1005	3	4801	11	1309	1806	43	28	11	29		668	110	440	18	16,924
Nevada	Nov.			30			10		25		16	2						8		4		96
	11 Mos.			555	4		113		403		282	96			3			96	2	99	4	1,627
New Hampshire	Nov.		2	73	1		31		69		28	13		2				10		7		240
	11 Mos.	12	11	1076	16	11	417	3	815	1	336	361		80	6	41	1	153	21	108	6	3,475
New Jersey	Nov.	13	36	780	15	36	253	16	592	2	212	101		33				59	24	56	2	2,246
	11 Mos.	174	307	8505	246	247	2288	63	6711	18	2239	2248		508	100	84	17	758	454	544	30	25,561
New Mexico	Nov.			344	1		79		206		137	30		2				42	6	26		873
	11 Mos.			3559	2	2	536	9	1811	2	961	459	5	37	3	1		496	23	218	14	8,139
New York	Nov.	25	72	1431	56	41	660	19	871	5	332	222		63	2	38	3	96	101	131	26	4,174
	11 Mos.	438	757	17065	797	353	6412	271	11423	50	4458	5482	1	1466	102	456	55	1693	1137	1161	309	53,886
North Carolina	Nov.	5		1345	12	4	286	6	875		215	130		49	3	5		102	38	46	13	3,114
	11 Mos.	81	4	11254	45	58	2259	24	9030		2043	2162		568	28	32	6	1262	306	404	192	29,758
North Dakota	Nov.			206	1		50		173		43	41						10		15		540
	11 Mos.			2425	27	3	484	5	2167		475	1076		8	3	1		323	2	208	7	7,214
Ohio	Nov.	4	1	1274	15	27	424	19	1079		307	158		21	2	28		107	96	79	5	3,646
	11 Mos.	99	12	17093	320	397	4102	115	14117	12	3524	4684		488	104	247		1583	1120	468	31	48,908
Oklahoma	Nov.			621	1		199		640	2	147	93		4				53	19	35	1	2,018
	11 Mos.			8457	15	53	1879		7228	15	2017	1944		44	18	55		938	239	398	14	24,315
Oregon	Nov.	2		436	10	7	148	5	342		161	90	10	12				42	16	53	8	1,345
	11 Mos.	20		4619	92	37	1185	12	3481	7	1522	1448		141	3	20	6	550	88	681	69	14,038
Pennsylvania	Nov.	47	135	1531	67	149	730	15	1683	1	483	254		85	11	59	3	164	115	95	9	5,638
	11 Mos.	216	629	19051	415	263	5934	117	14788	4	4376	5663		707	130	453	37	1893	1110	1029	101	55,918
Rhode Island	Nov.	1	1	76	2	6	40		40		20	31						11	2	6		241
	11 Mos.	59	6	1042	26	57	434	4	957		212	390		7	12	19	5	131	55	94	5	3,585
South Carolina	Nov.			454	3																	

# Truck Specifications Table

OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY  
**COMMERCIAL CAR JOURNAL**

## Key to Definitions, References and Abbreviations

### DEFINITIONS

#### MAKE AND MODEL

Only Domestic Truck Models are listed.

#### OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

#### CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

#### RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle

Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

#### CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

#### STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

#### MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

#### MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

#### MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

#### MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

#### GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

#### TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

### KEY TO REFERENCES

c.f.—Cab Forward design.  
c.o.e.—Cab-Over-Engine design.  
(D)—Diesel-engine equipped.  
(T)—Designed for tractor use only.  
(C)—Converted Ford or Chevrolet Model.

### KEY TO ABBREVIATIONS

#### MAKES—ALL

B—Bendix.  
BL—Brown-Lipe.  
Bu or Bud—Buda.  
BW—Bendix-Westinghouse.  
C—Chevrolet.  
Cl or Cla—Clark.  
Con—Continental.  
Cum—Cummins-Diesel.  
Eat—Eaton.  
F—Ford.  
Fu—Fuller.  
G-H—Goodyear-Hawley type.  
H—Hotchkiss.  
Her—Hercules.  
HS—Hall-Scott.  
L—Lockheed.  
LH—Lockheed front, Wagner "hi-Tork" rear.  
LT—Lockheed type front, Timken rear.  
LW—Lockheed front, Wisconsin rear.  
M—Midland.  
N.P.—New Process.  
O or Ow—Owl.  
Op or Opt—Optional.  
Shu—Shuler.  
Spi—Spicer.  
T or Tim—Timken-Detroit Axle Co.  
Tw—Timken-Detroit—Westinghouse.  
TW—Timken-Detroit—Wisconsin.  
WG—Warner Gear.  
Wau—Waukegan.  
W or Wis—Wisconsin.  
Wg—Wagner "hi-Tork".  
Ws—Westinghouse.  
WW—Westinghouse or Wagner.

#### WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.  
2R—Rear Unit of Rear Axle Group.  
4R—Forward and rear units of Rear Axle Group.  
—All wheels.

#### BRAKES—SERVICE

##### Location

4—Four Wheels, front and rear.  
4r—Four Wheels, rear only.

##### Type

I—Internal.  
X—External.

##### Operation

A—Air.  
H—Hydraulic.  
V—Vacuum.  
D or Dp—Dual Primary

#### BRAKES—HAND

##### Location

C—Center of double propeller shaft.  
2—Rear wheels.  
4—Four wheels.  
6—Six wheels.  
P—Back of Power Divider.  
J—Jackshaft.  
T—Transmission.  
F—Driveshaft.

##### Type

D—Tru-Stop disk.  
I—Internal.  
M—Mechanical.  
X—External.  
PD—Two drums on rear of power divider.

#### BRAKE DRUMS

##### Material

a—Cast alloy iron.  
A—American Car Foundry.  
c—Cast iron.  
Cc—Composite Front, Cast Iron in rear.  
Ce—Centrifuge.  
Ci—Copper iron.  
Co—Composite.  
D—Dayton.  
E—Ermalite.  
Q—Gunite.  
N—Nickel iron.  
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

#### FRAME

##### Type

C—Channel.  
T—Channel tapered front and rear.  
L—Channel reinforced with liner.  
A—Channel reinforced with both liner and fishplate.  
P—Channel reinforced with plate.  
TL—Channel tapered front and rear reinforced with liner.  
D—Drop Center.  
Ti—Tapered front.  
S—Straight section sidemembers, lined with oak inserts.  
Z—Reinforced (X) member frame, box type sections.

#### REAR AXLE

##### Final Drive and Type

B—Bevel.  
CD—Chain Drive.  
F—Full-floating.  
H or Hy—Hypoid.  
d—Dual range axle.  
2—Double Reduction.  
S—Spiral bevel.  
W—Worm.  
3/4—Three Quarters Floating.  
1/2—Semi-Floating.  
T—Torque Tube

#### GEAR RATIOS

(\*) Only one ratio.

#### Drive and Torque

H—Hotchkiss (springs).  
R—Radius Rods.  
L—Parallel Torque Rods.  
T—Torque Arm.

#### GOVERNOR STANDARD

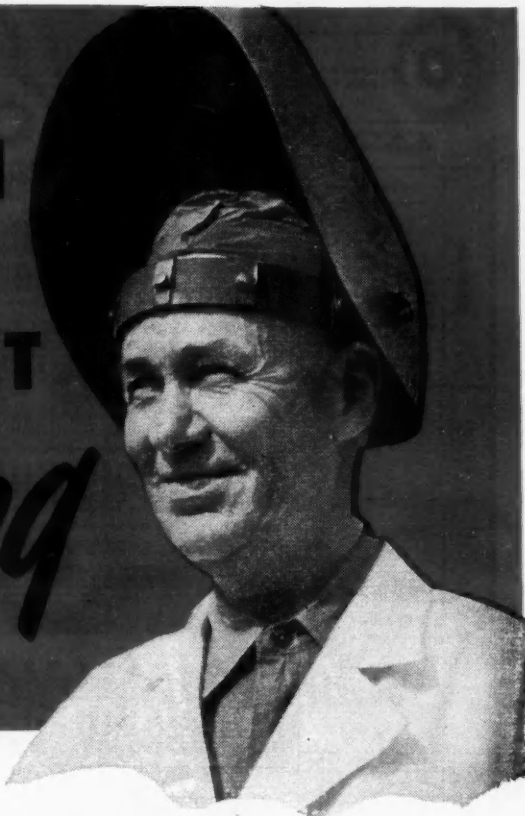
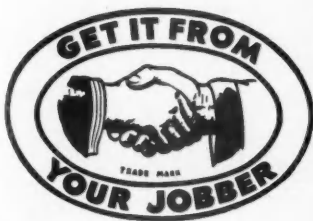
Y—Yes.  
N—No.

(Turn to Page 84, Please)



A great number of welding electrodes are produced these days. One problem is to select the right rods for welding the various kinds of steel used in truck construction. For example, in welding of higher carbon steels—with or without alloys—the area next to the weld and the weld metal is air-hardening . . . that is, it becomes harder and more brittle after heating by welding. Most welds in maintenance and repair welding cannot be heat treated, so they must be serviceable "as welded". Cracking must be avoided. For these cases, the stainless steel electrodes Type 308, or Type 309 are recommended. Welds made with these rods do not harden because of sudden cooling, and they remain tough and strong. In general, forgings, springs, axles or shafts, frames, and other high-carbon steel parts are safely welded with stainless steel.

**Marquette Instant-Arc A-C Welders**  
are fully tested and listed by Under-  
writers' Laboratories, Inc. . . . and are  
guaranteed against defective material  
and workmanship for one year.



**Provide Him with the  
BEST Possible Equipment!**



### Model 72

Cut down lost time. With the new, improved Marquette Instant-Arc A-C Welder your crew can make money-saving repairs in a hurry. Variable voltage control, and a wide choice of amperage stages quickly provide the right heat for every welding job. The "Instant Arc" striking characteristics, and the stability of the arc in operation assure smooth, even, efficient welding. Compact, completely self-contained, mounted on sturdy Oilite-bearing wheels, the new welder is easy to use. Write today for **ALL** the facts about this new money-*earning* welder.

**GET IT FROM YOUR JOBBER**

# MARQUETTE

REGISTERED U.S. PAT. OFFICE

INSTANT ARC

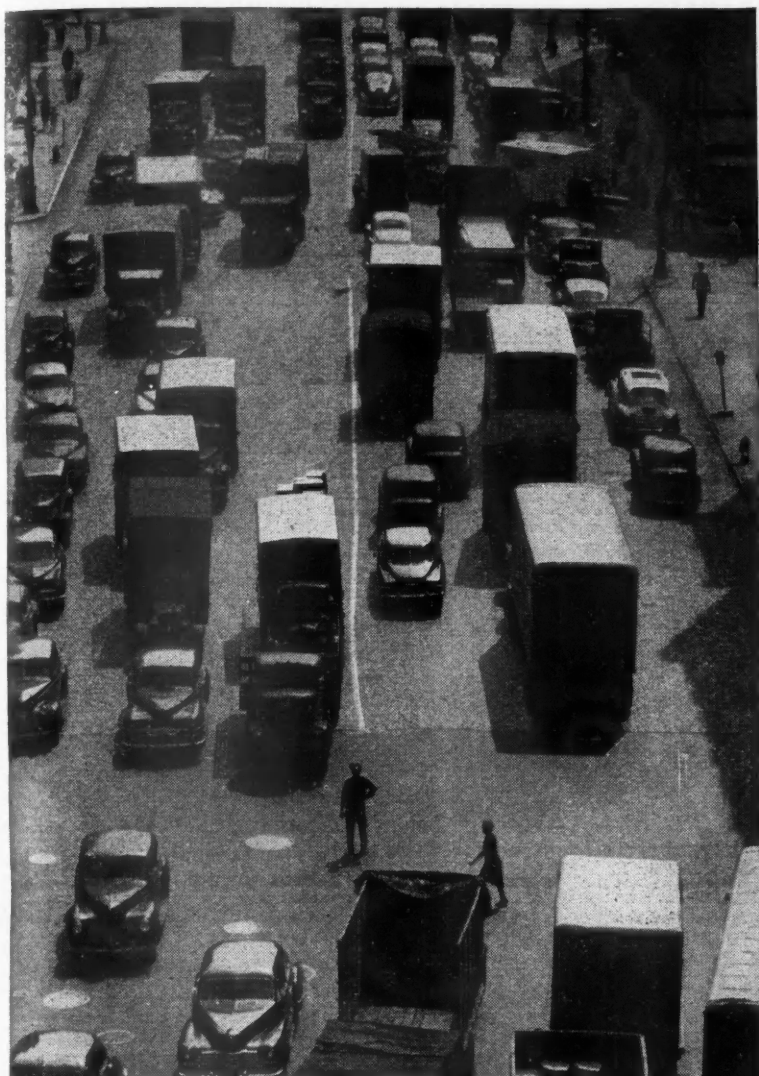
## A • C WELDER

**MARQUETTE MANUFACTURING CO., INC.**

**307 E. Hennepin Ave. • Minneapolis 14, Minn.**

Line Number	MAKE AND MODEL	CHASSIS LIST PRICE		Gross Vehicle Weight For Normal Service	Chassis Weight (See definition)	TIRE SIZES		ENGINE DETAILS						TRANS- MISSION		REAR AXLE			FRONT AXLE	BRAKES				C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	FRAME			
		Minimum	Maximum			Standard	Rear (Duals un- less noted)	D-dual rear S-single rear	No. of Cylinders	Stroke and Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Number of Bearings	Governor Standard	Make and Model	Forward Speeds	Make and Model		Gear and Type	Gear Ratio Range in High	Make and Model	Location Type				Lining Area	Drum Area	Hand Location Material
Dodge - Cont'd																													
1	B-3-FA	128	170	6.50/20	7.50/20	Own TX-314	6-3	236	9.8	6192	109-3600	1	YNP-39760	4	TS-314	4	TS-314	Hyd	H 5.82-6.8	11	Own TX-314	O41HV	336	479	Ce	TX	60	1212	1
2	B-3-CA	128	14500	6.50/20	8.25/20	Own TX-314	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-314	4	TS-314	Hyd	H 5.82-6.8	11	Own TX-314	O41HV	336	479	Ce	TX	60	1212	2
3	B-3-GA	128	192	6.50/20	8.25/20	Own TX-314	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-314	4	TS-314	Hyd	H 5.82-6.8	11	Own TX-314	O41HV	336	479	Ce	TX	60	1212	3
4	B-3-GM	107	14750	6.50/20	8.25/20	Own TX-326	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-326	4	TS-326	Hyd	H 5.82-6.8	11	Own TX-326	O41HV	336	479	Ce	TX	60	1212	4
5	B-3-GMA	107	161	6.50/20	8.25/20	Own TX-326	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-326	4	TS-326	Hyd	H 5.82-6.8	11	Own TX-326	O41HV	336	479	Ce	TX	60	1212	5
6	B-3-HA	128	192	6.50/20	8.25/20	Own TX-316	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-316	4	TS-316	Hyd	H 5.82-6.8	11	Own TX-316	O41HV	336	479	Ce	TX	60	1212	6
7	B-3-HM	107	161	6.50/20	8.25/20	Own TX-328	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-328	4	TS-328	Hyd	H 5.82-6.8	11	Own TX-328	O41HV	336	479	Ce	TX	60	1212	7
8	B-3-HMA	107	161	6.50/20	8.25/20	Own TX-328	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-328	4	TS-328	Hyd	H 5.82-6.8	11	Own TX-328	O41HV	336	479	Ce	TX	60	1212	8
9	B-3-HH	107	161	6.50/20	8.25/20	Own TX-316	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-316	4	TS-316	Hyd	H 5.82-6.8	11	Own TX-316	O41HV	336	479	Ce	TX	60	1212	9
10	B-3-HHM	107	161	6.50/20	8.25/20	Own TX-328	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-328	4	TS-328	Hyd	H 5.82-6.8	11	Own TX-328	O41HV	336	479	Ce	TX	60	1212	10
11	B-3-HHA	128	192	6.50/20	8.25/20	Own TX-316	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-316	4	TS-316	Hyd	H 5.82-6.8	11	Own TX-316	O41HV	336	479	Ce	TX	60	1212	11
12	B-3-HHM	107	161	6.50/20	8.25/20	Own TX-328	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-328	4	TS-328	Hyd	H 5.82-6.8	11	Own TX-328	O41HV	336	479	Ce	TX	60	1212	12
13	B-3-HMA	107	161	6.50/20	8.25/20	Own TX-316	6-3	236	6.8	6192	109-3600	1	YNP-88570	4	TS-316	4	TS-316	Hyd	H 5.82-6.8	11	Own TX-316	O41HV	336	479	Ce	TX	60	1212	13
14	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	14
15	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	15
16	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	16
17	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	17
18	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	18
19	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	19
20	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	20
21	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	21
22	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	22
23	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	23
24	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	24
25	B-3-JL	128	212	7.00/20	9.00/20	Own TX-318	6-3	250	6.8	6206	114-3600	1	YNP-88700	5	TS-318	5	TS-318	Sfd	H 6.28-7.16	16	Own TX-318	O41HV	396	536	536	TX	60	1212	25
26	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	26
27	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	27
28	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	28
29	B-3-JL	107	161	6.50/20	9.00/20	Own TX-330	6-3	250	6.8	6206	109-3600	1	YNP-88920	5	TS-330	5	TS-330	Sfd	H 6.28-7.16	16	Own TX-330	O41HV	396	536	536	TX	60	1212	29
30	B-3-JL	130	229	7.50/20	9.00/20	Own TX-320	6-3	306	6.8	4253	137-3000	7	YNP-88220	5	TS-320	5	TS-320	Sfd	H 6.16-5.19	9	Own TX-320	O41HV	397	609	609	TX	60	1212	30
31	B-3-JL	130	229	7.50/20	9.00/20	Own TX-320	6-3	306	6.8	4253	137-3000	7	YNP-88220	5	TS-320	5	TS-320	Sfd	H 6.16-5.19	9	Own TX-320	O41HV	397	609	609	TX	60	1212	31
32	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	32
33	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	33
34	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	34
35	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	35
36	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	36
37	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	37
38	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	38
39	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	39
40	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	40
41	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	41
42	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	42
43	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	43
44	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3	331	6.8	4250	145-3000	7	YNP-88450	5	TS-322	5	TS-322	Sfd	H 6.38-9.18	18	Own TX-322	O41HV	425	666	666	TX	60	1212	44
45	B-3-JL	130	229	7.50/20	9.00/20	Own TX-322	6-3																						

**A**—Includes cab.  
**F**—Front only; Rear 10.00/20.  
**R**—Rear only; Rear 9.00/.  
**W**—For wheelbases below 106".  
**O**—For wheelbases below 106".  
**S**—For shorter wheelbases.  
**T**—Five speed transmission obtainable  
 —Front only; Rear 7.50/20.  
**V**—Diesel engine obtainable.  
**X**—Overdrive optional.  
**Z**—Radius rods obtainable.  
**3**—3.5MA and 4.5MA have auxiliary transmissions.



## Exide has **EVERYTHING!**

Surplus **STARTING POWER**  
**EXTRA LONG LIFE**  
**LOW COST** per mile of operation

**WHEN IT'S AN EXIDE YOU START**

## Keep your trucks on the road with the help of **Exide** Batteries

Exide Batteries are built for your kind of service . . . rough, tough service . . . day after day . . . in all weathers. Exide research-engineering, plus Exide manufacturing skill and experience, make Exide the best truck battery buy at any price.

THE ELECTRIC STORAGE BATTERY CO.  
 Philadelphia 32

*Exide Batteries of Canada, Limited, Toronto*

"Exide" Reg. Trade-mark U.S. Pat. Off.

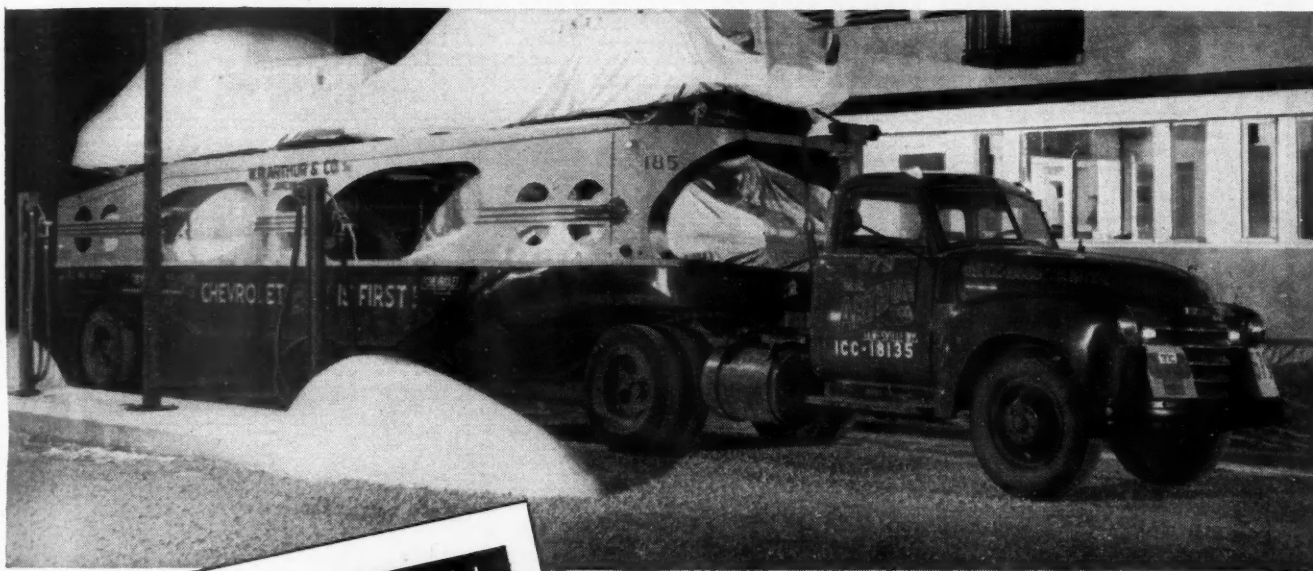
**1888**  
**DEPENDABLE BATTERIES FOR 63 YEARS**  
**1951**

(Continued from Page 86)

Line Number	MAKE AND MODEL	WHEEL-BASE		TIRE SIZES		ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES			FRAME													
		Minimum	Maximum	Standard	Chassis List Price	Standard	Front and Rear	Max. Authorized (Dual Size)	Max. (Single rear)	No. of Cylinders	Stroke	Comp. Ratio	Displacement	Torque lb. ft.	H.P. at R.P.M.	Number and Length of Main Bearings	Governor Standard	Model and Make	Gear and Type	Drive Ratio	Range in High	Model and Make	Location	Operation	Area	Drum	Material	Hand Location	C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type
1	Ford F-1	980	114	114	4700	2260	0.0/16-4	6.50/16-68	0.0/16-68	6-3	3.4	2.36/6	2396	8180	95-3300	4-2.87x5.0	0	N/A	Own 8C	H/H	H/H	H/H	Own 8C	04IH	178	259	Co	M2	40.065.92x2.15	40.065.92x2.15	T
2	Ford F-2	980	114	114	4700	2260	0.0/16-4	6.50/16-68	0.0/16-68	6-3	3.4	2.36/6	2396	8180	95-3300	4-2.87x5.0	0	N/A	Own 8C	H/H	H/H	H/H	Own 8C	04IH	178	259	Co	M2	40.065.92x2.15	40.065.92x2.15	T
3	Ford F-3	1045	122	122	5700	2616	0.0/16-6	7.50/16-68	0.0/16-68	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8D	SF	H/H	H/H	Own 8D	04IH	167	264	Co	M2	48.066.62x2.19	48.066.62x2.19	T
4	Ford F-4	1075	122	122	5700	2656	0.0/16-6	7.50/16-68	0.0/16-68	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8D	SF	H/H	H/H	Own 8D	04IH	167	264	Co	M2	48.066.62x2.19	48.066.62x2.19	T
5	Ford F-5	1120	122	122	6300	2847	0.0/17-68	7.50/17-88	0.0/17-88	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8E	SF	H/H	H/H	Own 8E	04IH	188	308	Co	M2	48.066.62x2.19	48.066.62x2.19	T
6	Ford F-6	1120	122	122	6300	2889	0.0/17-68	7.50/17-88	0.0/17-88	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8E	SF	H/H	H/H	Own 8E	04IH	188	308	Co	M2	48.066.62x2.19	48.066.62x2.19	T
7	Ford F-7	1137	104	104	7800	3037	0.0/16-68	7.50/17-88	0.0/17-88	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8J	SF	H/H	H/H	Own 8J	04IH	215	330	Co	TX	100.062.24x2.19	100.062.24x2.19	T
8	Ford F-8	1390	122	122	7800	3107	0.0/16-68	7.50/17-88	0.0/17-88	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 8J	SF	H/H	H/H	Own 8J	04IH	215	330	Co	TX	100.062.24x2.19	100.062.24x2.19	T
9	Ford F-9	1176	134	134	10000	3457	0.0/20-88	9.00/18-8	0.0/18-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
10	Ford F-10	1206	134	134	10000	3497	0.0/20-88	9.00/18-8	0.0/18-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
11	Ford F-11	1220	134	134	14000	3646	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
12	Ford F-12	1250	134	134	14000	3686	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
13	Ford F-13	1250	134	134	14000	3796	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
14	Ford F-14	1250	134	134	14000	3826	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
15	Ford F-15	1370	176	176	14000	3926	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
16	Ford F-16	1401	176	176	14000	3966	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
17	Ford F-17	1608	110	110	14000	4346	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
18	Ford F-18	1636	110	110	14000	4386	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
19	Ford F-19	1636	110	110	14000	4416	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
20	Ford F-20	1636	110	110	14000	4516	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
21	Ford F-21	1668	158	158	14000	4546	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
22	Ford F-22	1668	158	158	14000	4586	0.0/20-8	7.50/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
23	Ford F-23	1316	158	158	12000	3756	0.0/20-8	7.00/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
24	Ford F-24	1345	158	158	12000	3796	0.0/20-8	7.00/20-8	0.0/20-8	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
25	Ford F-25	1530	194	194	15000	4267	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
26	Ford F-26	1560	194	194	15000	4307	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
27	Ford F-27	1610	134	134	16000	3987	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
28	Ford F-28	1610	134	134	16000	4027	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
29	Ford F-29	1610	134	134	16000	4067	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
30	Ford F-30	1640	158	158	16000	4057	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
31	Ford F-31	1640	158	158	16000	4097	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
32	Ford F-32	1707	158	158	16000	4237	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
33	Ford F-33	1623	176	176	16000	4137	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
34	Ford F-34	1623	176	176	16000	4177	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
35	Ford F-35	1748	176	176	16000	4317	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
36	Ford F-36	1990	110	110	16000	4547	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
37	Ford F-37	1990	110	110	16000	4587	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
38	Ford F-38	2059	110	110	16000	4627	0.0/20-8	8.25/20-10	0.0/20-10	6-3	3.4	4.22/6	3396	8180	95-3300	4-2.87x5.0	2	N/A	Own 4IT	SF	H/H	H/H	Own 4IT	04IH	302	506	Co	TX	60.067.22x2.19	60.067.22x2.19	T
39	Ford F-39	2059	110	110	16000	4667	0.0/20-8	8.25/20-10	0.0/20-10	6-3																					

# USER REPORT:

"...Our Twentieth Year in the use of Warner Electric Brakes on our fleet...each one of our 57 trailers will travel 100,000 miles a year"



**W. R. Arthur & Co. Inc.**  
JANESVILLE, WIS. • TELEPHONE  
automobile  
transporting

Warner Electric Brake Manufacturing Co.  
Beloit, Wisconsin

Gentlemen:

Believe you will be interested in knowing that this is our twentieth (20th) year in the use of Warner Electric Brakes on our fleet. Our first electric brakes were purchased from you in 1929, and we have been 100% Warner equipped ever since.

Each one of our fifty-seven (57) trailers will travel about an average of 100,000 miles a year throughout several of the midwestern states. Like all fleet owners, we are interested in maintenance costs, and we are glad to say that Warner Electric Brakes have proven very practical for our fleet. This, and their dependable operation, prompts us to specify Warner Electric Brakes on new trailers as they are ordered from the manufacturer.

Very truly yours,  
W. R. ARTHUR & CO., INC.  
*W. R. Arthur*  
W. R. Arthur

WRA:MEH

**G**OOD BRAKES, dependable in all kinds of weather over all kinds of roads are absolute "musts" for new car transport. Here's a letter from a 20-year veteran user of Warner Electric Brakes. His experience can be yours — if you, too, put Warner's on your trailer.

If you've never used Warner Electric Brakes you'll find they provide an entirely new concept of effective stopping power. Being electrically operated there is no time lag in getting instantaneous action regardless of the distance between cab and rear trailer wheels. They develop their stopping power within the brake itself. Always *controlled* braking power—driver sets "Vari-load" dial on dash to meet load and road conditions.

For maximum performance and satisfaction, standardize on WARNER ELECTRIC BRAKES. Write for illustrated literature, explaining all their many advantages.

**WARNER ELECTRIC BRAKE & CLUTCH CO.**  
DEPT. CCJ, BELOIT, WISCONSIN

**WARNER**

THE ORIGINAL AND PROVEN

**ELECTRIC BRAKES**

SINCE 1927

(Continued from Page 88)

Line Number	MAKE AND MODEL	WHEEL-BASE		TIRE SIZES		ENGINE DETAILS				TRANSMISSION		REAR AXLE			FRONT AXLE	BRAKES				FRAME								
		Minimum Standard	Maximum Standard	Standard Front and Rear	Maximum Authorized Tire Size (Dually un-less noted)	Model and Make	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings Diameter	Governor Standard	Model and Make	Forward Speeds	Model and Make	Clear and Type	Drive & Torque	Gear Ratio	Range in High	Model and Make	Location Type Operation	Lining Area	Drum Material	Hand Type	C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type
1	Mar. Her. . . DVL-4	90	118	7.50/168	8.25/188	Willis MB	4-3 1/2 x 4 1/2	134.6	4.105	60-4000-3-233x5.48	Y Spt 8041	Y Own	3 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
2	Peterbilt (D) . . . 280	175	Opt	10.00/20D	11.00/22	Cum HB600	6-4 1/2 x 6	672/17	5.00	150-1800-7-4 1/2 x 16 1/2	Y Spt 8041	Y Own	12 U-200P	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
3	Reo . . . F-20A	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
4	Reo . . . F-20B	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
5	Reo . . . F-20C	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
6	Reo . . . F-20D	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
7	Reo . . . F-20E	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
8	Reo . . . F-20F	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
9	Reo . . . F-20G	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
10	Reo . . . F-20H	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
11	Reo . . . F-20I	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
12	Reo . . . F-20J	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
13	Reo . . . F-20K	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
14	Reo . . . F-20L	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
15	Reo . . . F-20M	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
16	Reo . . . F-20N	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
17	Reo . . . F-20O	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
18	Reo . . . F-20P	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
19	Reo . . . F-20Q	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
20	Reo . . . F-20R	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
21	Reo . . . F-20S	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
22	Reo . . . F-20T	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
23	Reo . . . F-20U	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
24	Reo . . . F-20V	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
25	Reo . . . F-20W	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
26	Reo . . . F-20X	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
27	Reo . . . F-20Y	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
28	Reo . . . F-20Z	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
29	Reo . . . F-20AA	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
30	Reo . . . F-20AB	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
31	Reo . . . F-20AC	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
32	Reo . . . F-20AD	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
33	Reo . . . F-20AE	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
34	Reo . . . F-20AF	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
35	Reo . . . F-20AG	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
36	Reo . . . F-20AH	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
37	Reo . . . F-20AI	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
38	Reo . . . F-20AJ	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y Spt 8041	Y Own	4 (Front Drive)	2F	7.10	Own	41H	738/1052	7.10	7.10	W41A	41H	202	327	M2	80 1/2	10 1/2 x 3 1/2	CT
39	Reo . . . F-20AK	125	125	7.50/20	8.25/20	Owa 255	6-3 1/2 x 4 1/2	255/6	7.189	107-3400-7-2 1/2 x 9	Y S																	

Goodyear 70 and 5 wide-base rims

# The only complete line of modern wide-base truck rims

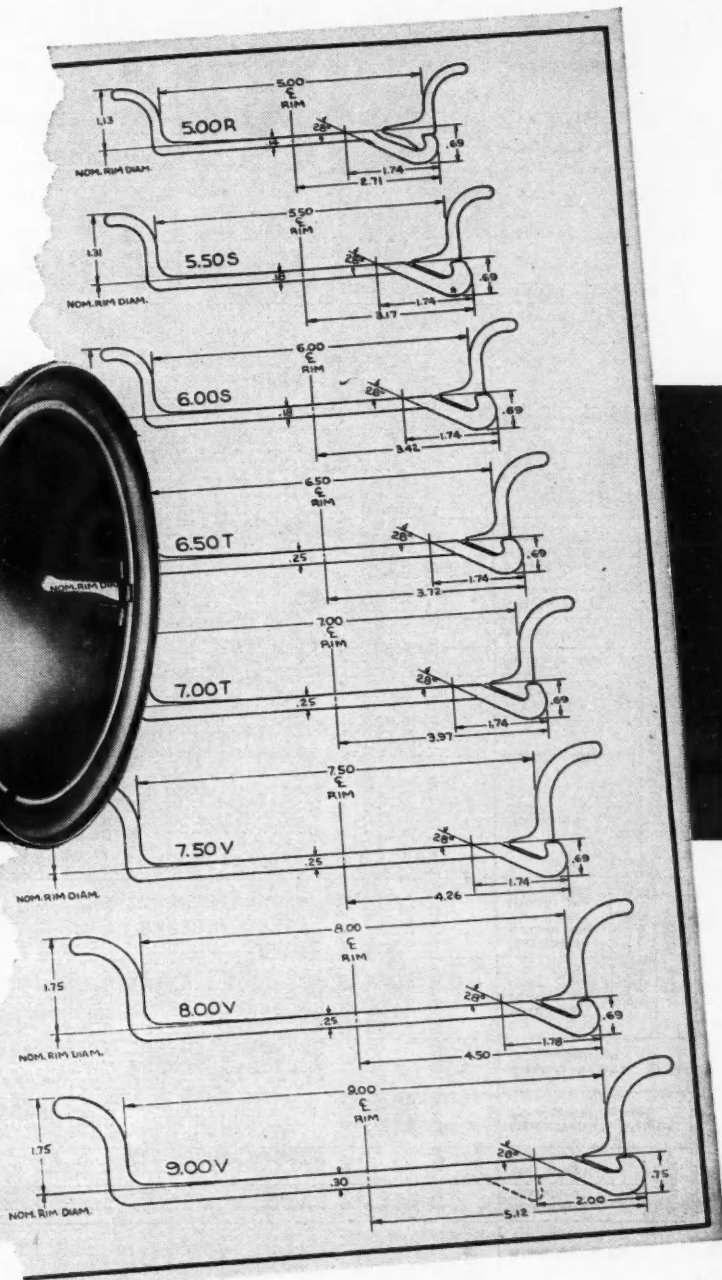
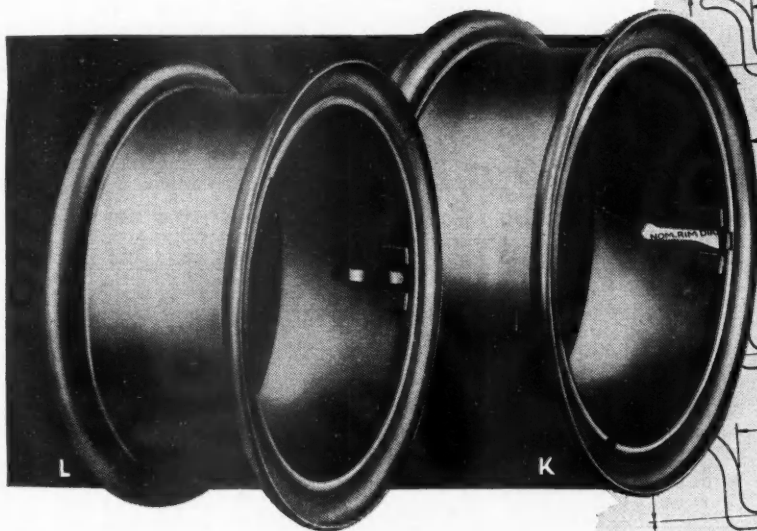
of uniform design

offering you the advantages of

minimum weight

adequate strength

ease of operation



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More than six million Goodyear Rims are now in service. This general acceptance and usage of Goodyear Standard Wide-Base Rims on the latest truck models is conclusive proof of their outstanding performance in giving greater tire mileage and better service.

*Two types in all standard sizes*

Minimum weight and adequate strength assure maximum tire mileage.

# GOODYEAR RIMS

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\* Rear only. Front 1.13. \* Complete vehicle with pick-up type body. \* \$200 for 8.25/16 tires. \* Two speed 6.13-8.10 and E.D. 6.20 or 6.80 optional. \* Auxiliary transmission Own P.J. \* Two speed 6.13-8.10 optional. \* Includes Cap. \* Side available. \* Auxiliary Transmission Own O.J. (Turn to Page 92, Please)

(Continued from Page 90)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE		TIRE SIZES		ENGINE DETAILS					TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES			FRAME											
			Minimum	Standard	Standard	Maximum	Authorized	Make and Model	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings and Diameter	Governor Standard		Make and Model	Drive & Torque	Gear Ratio	Range in High	Location	Operation Type	Drum	Drum	Hand Location	Material	Type	Side Rail Dimensions			
<b>Four-Wheel-Drive</b>																															
1	Coleman . . . G-55		136	150	30000	11750	11.00/20	12.00/20	Buda LO-525	6-4 1/2 x 5 1/2	525.6	7.400	150-2200	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	
2	Corbett . . . G101F20		Opt	Opt	20000	8.25/20	9.00/20	Con M6330	6-4 1/2 x 5 1/2	330.6	1.248	104-2800	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
3	Corbett . . . G301F24		Opt	Opt	24000	9.00/20	10.00/20	Con M6330	6-4 1/2 x 5 1/2	330.6	1.248	104-2800	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
4	Corbett . . . G301F24		Opt	Opt	24000	9.00/20	10.00/20	Con M6330	6-4 1/2 x 5 1/2	330.6	1.248	104-2800	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
5	(T) (D) D808U32		Opt	Opt	32000	10.00/20	11.00/24	Con M6330	6-4 1/2 x 5 1/2	330.6	1.248	104-2800	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
6	Dodge . . . B-3-PW		126	126	9500	7.50/16S	9.00/16S	Own T-137	6-3 1/2 x 4 1/2	230.6	7.186	94-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
7	FWD . . . LD		124	184	45500	6.50/20D	9.00/20	HerCB-QXLD3	6-3 1/2 x 4 1/2	226.6	7.190	97-3200	7-3 1/2 x 7	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
8	HA . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
9	HAY . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
10	HR . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
11	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
12	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
13	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
14	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
15	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
16	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
17	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
18	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
19	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
20	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
21	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
22	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
23	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
24	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
25	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
26	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
27	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
28	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
29	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
30	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
31	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
32	HRC . . . LD		132	168	47545	8.25/20D	10.00/20	Wau 195GKA	6-4 1/2 x 5 1/2	320.6	2.245	125-3200	4-2 1/2 x 4.8	YFu 5A650	5OW-C375FXa	5OW-C375FXa	9.66	OW	9.66	OW	TW 1A	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214	5989214
33	HRC . . . LD		132	168	47545																										

For extra miles in heavy-duty truck service...

# Sealed Power

## PAX Pistons and Assemblies

**SEALED POWER PAX PISTON**—Lo-Ex\* virgin aluminum alloy with silicon base, which dissipates heat better. Special Eboniting process assures smoother-running engine, because piston surface is oil-impregnated, oil-absorbing. T-slot design, cam ground, with rugged internal design for extra strength and most efficient heat transfer.

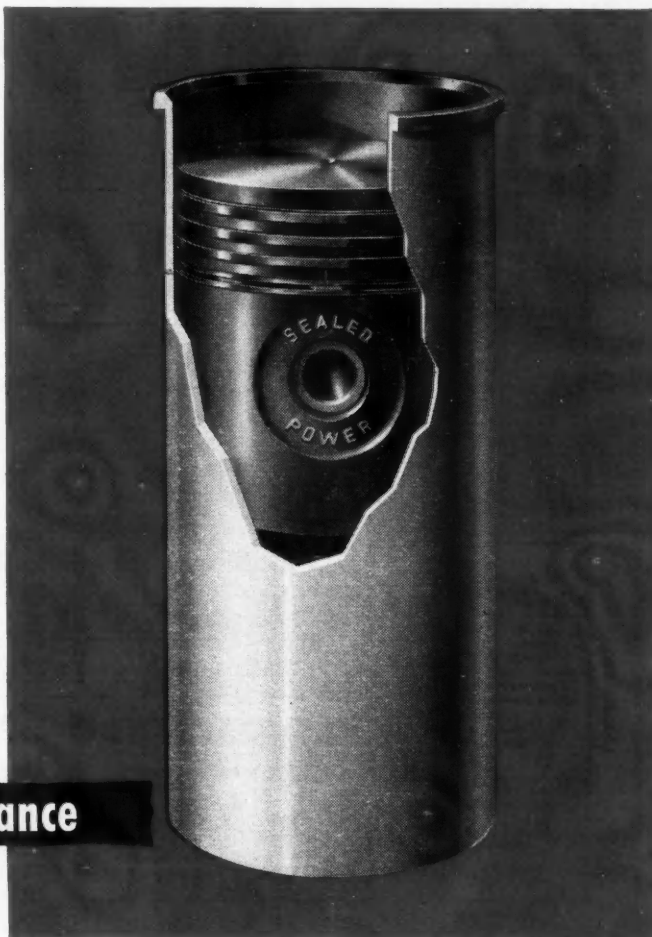
**SEALED POWER SLEEVE**—uniformly machined from castings with unusually fine grain and dense molecular structure for extreme wear-resisting qualities.

**SEALED POWER GI-60 CONTRACTING GROOVE INSERT**—Puts spring-steel armor plate at point of greatest wear, the top ring groove. The only piston on the market in which this section can be replaced for a few cents.

**SEALED POWER RING SET**—Sealed Power Piston Rings, specifically engineered to do the best possible job in the make and model specified.

**SEALED POWER PISTON PIN**—Sealed Power Double Lapped Piston Pins of special analysis steel are triple heat-treated, and tested for hardness. Each pin is individually fitted to its own PAX Assembly.

\*Registered trade mark of Aluminum Co. of America.



**All matched for peak performance**

Write for name of nearest distributor  
**SEALED POWER CORPORATION**  
**MUSKEGON, MICHIGAN**

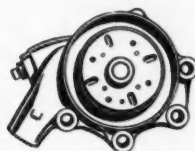
**Always use Sealed Power parts for best results**



**HEAVY DUTY PISTONS**—Aluminum or cast iron as indicated; exclusive T-slot design, cam ground, ruggedly designed, heat treated. Equal to or better than original equipment.

**WET OR DRY SLEEVES**—Machined from closely controlled castings, with exceptionally fine grain and dense molecular structure for long wear.

**VALVES**—Sealed Power Valves and valve parts are made from the correct grade of chrome nickel alloy steel for each engine, for finest performance and maximum service.



**WATER PUMPS**—Manufactured from finest quality materials to highest standards. Our line is complete.



**KING BOLTS & BUSHINGS**—Manufactured from highest quality forgings, and heat treated to meet your exact requirements.



**TIE RODS & SHACKLES**—Sealed Power Tie Rods, Spring Shackles, and Front Wheel Suspension Parts meet specifications of original equipment.

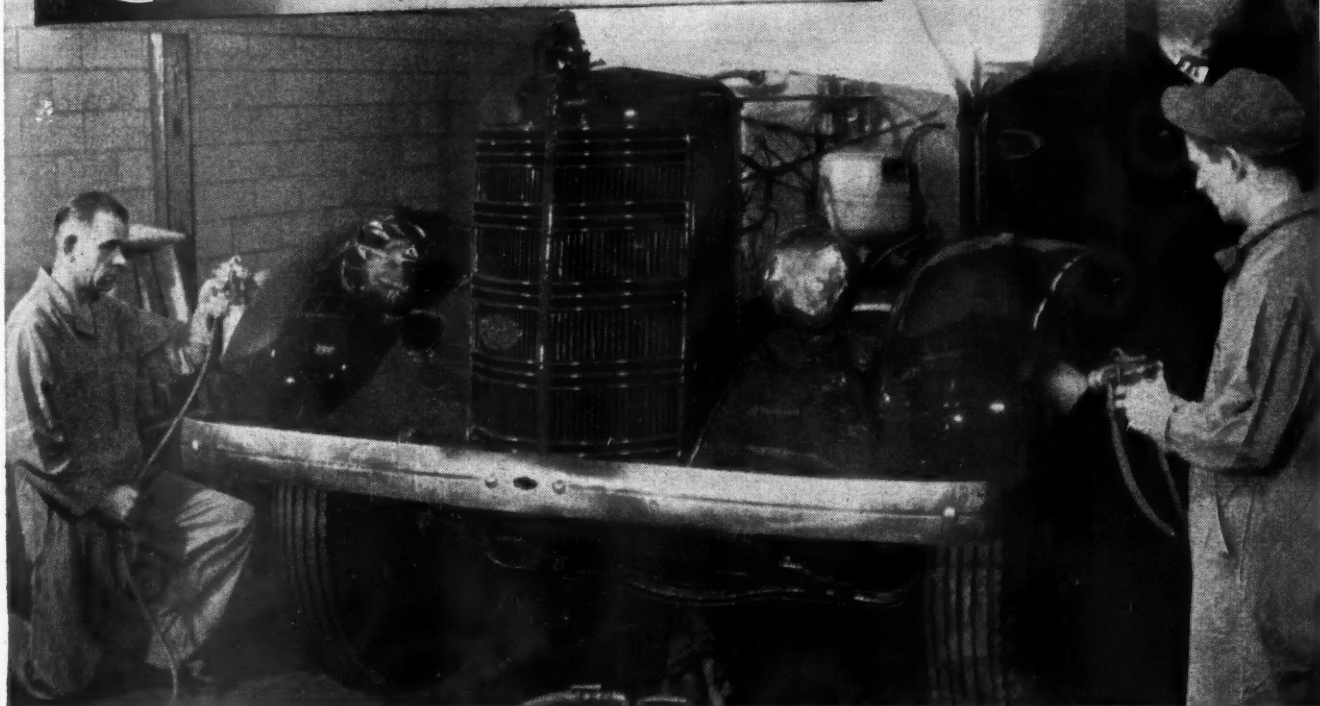
Line Number	MAKE AND MODEL	WHEEL-BASE		TIRE SIZES		Gross Vehicle Weight		Chassis Weight		ENGINE DETAILS		TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES		FRAME														
		Minimum	Maximum	Standard	Authorized (See definition)	Standard	Maximum	Standard	Maximum	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.	Given H.P. at R.P.M.	Main Bearings	Governor Standard	Make and Model	Forward Speeds	Make and Model	Gear Ratio	Drive & Torque	Range in High	Make and Model	Location	Operation Type	Lining Area	Drum	Hand Location	C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type		
<b>Six-Wheelers</b>																																	
1	Corbett	173	173	8.25/20	9.00/20	34500	34500	173	173	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
2	G302R40-4R	173	173	8.25/20	9.00/20	40000	40000	173	173	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
3	G402R40-4R	173	173	8.25/20	9.00/20	40000	40000	173	173	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
4	(T) D802R40-4R	173	173	8.25/20	9.00/20	40000	40000	173	173	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
5	Dodge	154	190	8.25/20	9.00/20	35000	35000	154	190	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
6	B3VXL, B2VX	154	190	8.25/20	9.00/20	35000	35000	154	190	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
7	Duplex	189	208	8.25/20	9.00/20	30000	30000	189	208	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
8	(D).....R1L6	189	208	8.25/20	9.00/20	30000	30000	189	208	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
9	10 Federal	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
10	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
11	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
12	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
13	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
14	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
15	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
16	661MA	179	225	8.25/20	9.00/20	42000	42000	179	225	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
17	Freightliner	176	54000	10.00/22	10.00/22	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
18	F.W.D.	Opt	Opt	10.00/20	10.00/20	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
19	HRC6XG	Opt	Opt	10.00/20	10.00/20	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
20	HRC6XG	Opt	Opt	10.00/20	10.00/20	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
21	HRC6XG	Opt	Opt	10.00/20	10.00/20	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
22	(D).....M6XGD	Opt	Opt	10.00/20	10.00/20	42000	42000	176	54000	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
23	Kenworth	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
24	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
25	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
26	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
27	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
28	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
29	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
30	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
31	(D).....522	191	255	10.00/20	10.00/20	42000	42000	191	255	6-4x6	427.5	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
32	Marmon-Herr	156	225	8.25/20	9.00/20	35000	35000	156	225	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	
33	(C).....R1L6	156	225	8.25/20	9.00/20	35000	35000	156	225	6-4x6	331.6	9.325	127-2600	3-11.23	Y/Fu 5A430	Y/Fu 5A430	5/Tim 1055	84F	L5.71-7.40	35000	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	W661A	10321058A	TX	

DeVilbiss



## Good finish! Good advertising!

Whether you paint your own vehicles or send them out, you want a professional job—a job which will be good advertising for your company. When DeVilbiss equipment is used, a factory-quality finish is always assured. The original finish on the vast majority of all motor vehicles is applied with DeVilbiss products: Spray Equipment, Exhaust Systems, Compressors and Hose.



## In professional painting TWO FACTS STAND OUT!



Finish is sprayed on



DEVILBISS IS FIRST!

When these two operators finish spraying the truck you see pictured above, it will look like a brand new vehicle straight from the factory.

It's the gleaming new finish that does it—a professional job done with DeVilbiss Equipment: Spray Guns, Exhaust Systems, Compressors and Hose.

You can put world-famous DeVilbiss products to work in your paint department or shops with the same fine

results. DeVilbiss equipment is first choice of vehicle manufacturers and leading fleet operators all over the world.

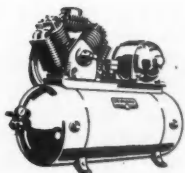
Let us show you how you can increase your profits, save time, cut refinishing costs, and increase the value of your rolling stock by using DeVilbiss standard equipment designed and built to handle your special problems.

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**THE DEVILBISS COMPANY**  
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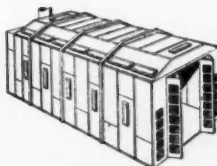
Air Compressors



Hose and Connections



Spray Guns



Spray Booths

FOR BETTER SERVICE, BUY

**DeVilbiss**



**(Turn to Page 94, Please)**

[illegible]

- Composite Cast Alloy Iron.
- Cast Alloy Iron.
- Single front dual rear.

Two speed axle available—6, 13-8, 10.  
Including slip-over reinforcing frame channels.  
With Baums power divider.  
are required it is necessary to furnish 52 inch axle spacing.

† Front only; Rear 9.00/20.  
‡ Front only; Rear 10.00/20.  
§ With Baum's auxiliary transmission.  
●—When 11.00/22 tires and 3B92.

† Auxiliary transmission, Spicer 8031.  
‡ Two speed axle with vacuum shift.  
Δ Rear only; Front 12.00/24.  
---Auxiliary transmissions Fuller 3A65, 3B65, 3C65.

‡ Includes Cab.  
 † Front only; Rear 8.25/20.  
 ‡ Rear only; Front 11.00/24.  
 †† Available with optional rear axle.

## CCJ News Reports

Continued from Page 27

both of Illinois, made the first of two debates on the question, "A Foreign Policy—What's The Answer?" They were followed on Jan. 21 by a continued debate on the same subject between Senator Taft of Ohio (R), and Senator Benton of Connecticut (D).

## White Motor Organizes Emergency Service

Anticipating the possibility of serious parts shortages as America's defense mobilization program progresses, The White Motor Co. has organized a systematic plan to keep White owners supplied with all parts needed to keep their vehicles rolling throughout the emergency. It will be similar to the parts conservation program sponsored by White during World War II.

While complete details are unavailable at this writing, it is understood that White intends to survey every White truck and bus owner to determine his basic parts needs. To insure complete coverage, as far as vehicle ownership can be traced, the survey will be handled by White representatives. Full details of the complete program will be described in CCJ as soon as available.

## ATA Forum

The Defense Transportation Administration has generally convinced government manpower agencies that domestic transportation facilities are "prime defense services which must have equal manpower considerations with the production of munitions."

This was the theme of a talk by P. L. (Roy) Siemiller, director of DTA Manpower Division before 150 trucking executives at the second annual national forum on trucking industrial relations held in St. Louis in mid-January by the Industrial Relations Committee of the American Trucking Associations. Several employee-management problems were discussed by the panel, including wage stabilization and health and welfare trusteeship.

Earl N. Cannon, who is general manager of the Central States Area Employers Association of Madison, Wisc., said that the industry was in a better position today to "properly protect itself" in the event of wage stabilization than it was when we entered World War II.

(TURN TO PAGE 103, PLEASE)

# FEDERAL Trucks

## POWERED for Profit-Plus PAYLOADS



★ Big powerful models — up to 35 tons — that can take it on around-the-clock schedules.

★ Husky, seven-bearing-crankshaft engines that meet modern power demands with — exceptional pulling capacity — ample reserve — low cost operation — long life service.

★ Rugged, heavy duty, deep channel frames with added section modulus for heavy loading.

★ Spacious, comfortable, all-steel cab built with many safety factors.

★ Heavy duty construction, hypoid axles with strongest axle shafts ever built for dependable service.

★ Big and powerful brakes with thick, long wearing liners to stop heaviest loads safely.

★ Latest design front axles, engineered for increased strength . . . easier steering . . . greater safety.

— and dozens of other desirable features that make today's heavy duty Federals Masters of the Highways.

### BUILT TO HANDLE THE BIG JOBS FASTER!

There's a reason why heavy duty Federal Trucks enjoy an enviable record of satisfactory performance. Their sturdy all-truck construction assures unmatched operating economy, low maintenance cost and long life service. Since 1910 Federal has built motor trucks exclusively. Federal engineers know what you operators need to meet today's hauling demands . . . to handle those big on-or-off-the-highway jobs faster and at a lower cost. So, put Federal gasoline or diesel powered units to work for you and save the difference. For particulars see your nearest Federal truck dealer or write us.

FEDERAL MOTOR TRUCK COMPANY • Detroit 9, Mich., U.S.A.

# FEDERAL



# TRUCKS

The Federal franchise may be available for your territory. Submit your request.



## INTRODUCING . . .

... E. C. McCORMICK, appointed manager of the New Orleans Branch of Mack-International Motor Truck Corp.

... WILLIAM J. FERGUS, appointed midwest division manager for Rusco brake linings and clutch facings, for Russell Mfg. Co., Middletown, Conn.

... ED. J. WATERS, as sales manager of the Automotive Lubrication Division, Aro Equipment Corp., Bryan, Ohio.

... L. K. SPRATLEN, as Assistant Sales Manager for the southern California area of South Gate Brake Specialties Co., Southgate, Calif.



... PAUL J. LARSEN, former Director of OCD is now assistant to the president of Borg-Warner Corp., Chicago.



... R. A. GOODLING, president and general manager of Dixie Highway Express, Inc., Meridian, Miss., to replace L. L. Majure who will become chairman of the board of directors.

... HAROLD J. HAVERMALE, who will head the manufacturing department in charge of military truck program, GMC Truck & Coach Div., Pontiac, Mich.

... GORDON L. LEACH, as special sales representative of Bendix-Westinghouse Automotive Air Brake Co.



... CHARLES W. HOWARD, as contact man for Rim Sales staff of Goodyear Tire & Rubber Co., Akron, Ohio.



... ALBERT WALTON, as general manager of manufacturing, the Budd Co., Philadelphia.

... BLAKE EILBECK, new Technical Assistant in the sales department of Bowers Battery and Spark Plug Co., Reading, Pa.

... G. C. (JIM) HEATH, who is now associated with Hart Pressed Steel Corp. as sales manager of their truck body parts division.

... O. D. SHIPLEY, former safety director for the Pennsylvania Motor Truck Association, holds a similar job now with C. E. Preslan & Co., Cleveland, Ohio, insurance underwriters.

(TURN TO NEXT PAGE, PLEASE)

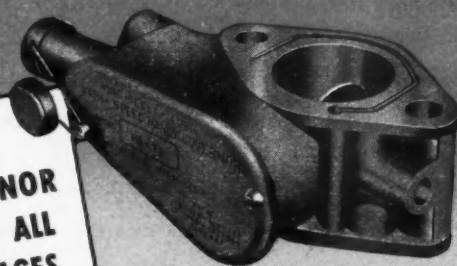
# Handy Governor

## Characteristics and Advantages

- 1 Wide range of governed speeds without the necessity of any change in governor assembly.
- 2 Controlled light load speeds.
- 3 Sharp governor cut-off—minimum horsepower loss.
- 4 Low speed droop.
- 5 Final full load and no load factory calibration on air flow machine assures you accuracy and uniformity in production.
- 6 Simple to adjust.
- 7 Simple mechanical design—only one moving shaft.
- 8 Sturdy corrosion-free construction.
- 9 Stainless steel needle bearings that insure instant response.



**NO OTHER  
VELOCITY GOVERNOR  
CAN GIVE YOU ALL  
THESE ADVANTAGES**



### KING-SEELEY CORPORATION

ANN ARBOR MICHIGAN

**PLANTS IN  
ANN ARBOR  
GRAND RAPIDS  
YPSILANTI**



# No.1 Ring

## FOR ALL REPLACEMENT JOBS

*re-bore  
re-ring  
re-sleeve*

Here's the one ring that answers all replacement problems. It's the right ring for every re-bore, re-ring and re-sleeve job.

And it's chrome-faced for heavy-duty service. Hastings has added a long-wearing chromium coating which resists wear, resists scuff-

ing, resists acids...an extra-hard surface which stretches expected ring life three to four times under tough, abrasive operating conditions.

It will pay you to install Hastings Piston Rings in every job. They stop oil-pumping, check cylinder wear, restore performance.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN  
Hastings Ltd., Toronto

HASTINGS USES CHROME  
WHERE IT DOES THE MOST GOOD  
... ON THE OIL CONTROL RINGS!



# HASTINGS

## STEEL-VENT PISTON RINGS

**CHROME-FACED for Heavy-Duty Service**

## Introducing . . .

(Continued from page 98)

... C. DEAN LAMPMAN, manager of Sales Promotion at General Tire & Rubber Co., Akron, Ohio.

... JOHN W. PENNINGTON has been named chief engineer of Piston Ring Department of Koppers Co.

... WM. HANSON as manager of the Market Development and Research departments of Four Wheel Drive Auto Co., Clintonville, Wis.

... F. C. GOREY as executive vice president of Highway Trailer Co.

... J. S. JOHNSON as assistant to the president of United States Rubber Co.

... ROBERT E. OWEN, as district manager in the southwest region for Car Wood Industries, Inc., Wayne, Michigan.

... W. A. BRADY has been appointed manager of the Bronx, N. Y., branch of Mack-International Motor Truck Co.

... KENNETH M. MUELLER, assistant to general sales manager of Willys-Overland Motors.

... JOHN A. MORELAND, JR., as manager of automotive sales division of Hunt-Spiller Mfg. Corp., Boston.



... FOSTER N. PERRY, as the new executive vice-president of American Bosch Corp., Springfield, Mass.

... HORACE L. ETHERIDGE has been elevated to the position of National Sales Representative for the Western Territory, Pacific Intermountain Express, Oakland, Calif.

... FRANK R. SANDY, of Des Moines, Iowa, who has been appointed sales representative for the Gumout Division of Pennsylvania Refining Co., Cleveland.

... M. J. TAUP, mobile products sales mgr. for Vickers, Inc., Detroit.



... EDWARD D. ROLLERT, as manager of General Motors aircraft program in Kansas City, assisted by M. H. Boden, formerly with GM in Atlanta, Ga. Wallace E. Wilson, formerly with AC Spark Plug will be chief engineer at the new F-84 Thunderjet plant, with John Q. Holmes as master mechanic. Ray J. Wilkins, former manager of the Kansas City plant will handle defense and civilian assignments at Detroit.

... ALFRED CUTLER newly appointed assistant manager of Seiberling Rubber Export Co., Akron, Ohio, has resigned from that position.



... CHET D. HIRSCH has been appointed Educational Director for the Bendix Automotive Service Sales organization, South Bend, Ind.

... DOUGLAS MUELLER, director of public relations for Seiberling Rubber Co., has been named assistant to the president.

... CHARLES J. SHIELDS, as manager of the Metropolitan New York branch of Bowers Battery & Spark Plug Co. of Reading, Pa.

... W. R. PERSONS, vice-president in charge of sales, Lincoln Electric Co., Cleveland, Ohio.

... From General Motors, Detroit, the following men: HARLOW H. COURTICE, S. E. SKINNER as members of the board of directors; ARNOLD LENZ, CLARENCE STANLEY and JACK F. WOLFRAM as vice-presidents.

**SINCE 1908**

**• a great name in automotive maintenance**

Hard working bearings that lie deep within motor vehicles aren't quite as simple to replace as hub caps. That's another reason why it's false economy to use ordinary replacement bearings. They cost as much in time and labor to install as Ahlbergs — the bearings deservedly famous throughout the automotive maintenance industry since 1908 — for unexcelled quality, super smoothness and maximum life expectancy.

So . . . if you're looking for ways to squeeze more out of your automotive maintenance dollars . . . look into Ahlberg's line which includes ball bearings of all types for cars, trucks, busses and tractors. Write for catalog and application manual.

**AHLBERG BEARING COMPANY**  
Precision Craftsmen Since 1908  
3025 West 47th Street • Chicago 32, Illinois

**AHLBERG Ball Bearings**

SINGLE ROW • ANGULAR CONTACT • DOUBLE ROW  
SELF ALIGNING • GREASED SEALED  
SNAP RING • THRUST

# CCJ News Reports . . .

Continued from Page 96

## Denuding the ICC Regs

At meetings in all parts of the country fleetmen are studying the new ICC safety regulations (CCJ Jan., P. 27) with an eye on getting their comments to proper authorities before the March 31 deadline.

Most frequently aired objections are aimed at these specific provisions:

The new stipulation for minimum eyesight and hearing (Rule 1.22 and 1.23). "In view of manpower shortages," the operators say, "at least give us a 'grandfather' clause."

The annual physical exam (1.32). "A three year period would be more practical and virtually as effective."

The prohibition of drivers with record of past offences, both civil and criminal (1.38). "Many now have good records."

Wheel flaps (3.3410). "They make side spray worse."

Rear bumpers (3.3419). "They just aren't practical."

The requirement that *deadheading* to work must be logged as *driving* time (5.6a). "That's a mighty strange definition of driving."

The authority for ICC inspectors to tag vehicles "out of service" because of mechanical defects (6.5). "Who is going to train the ICC men for this duty?"

## Council Expands Services

In view of the threat of many new restrictions and controls likely to be imposed by federal agencies in furtherance of national defense, and the resulting legislative activities within the several states, the National Council of Private Motor Truck Owners, Inc., of Washington have set organizational machinery in operation to keep the owners informed.

A council member has been designated to maintain a liaison with Council headquarters and serve as the Council's official representative or contact at the state level. He will be affiliated with and working through various State Highway Users Conferences and similar organizations directly concerned with state problems of major importance to private operators.

These representative members will attend User Conference meetings and keep abreast of state legislative proposals and other matters of interest to private carriers. Council headquarters will act as a collecting agency for reports of this nature and will coordinate action within the state by members.

A complete list of representatives who have been appointed to this job is available, and can be obtained by writing to the headquarters of the National Council of Private Truck Owners, Inc., Kaas Building, Washington 5, D. C.

## Packaging Study Being Made

Reduction of shipping losses and more economic use of packaging materials is the aim of experiments being conducted at the

Packaging Development Branch of the Engineer Research and Development Laboratories, Fort Belvoir, Va. Containers under test are subjected to vibrations, chock and impact of rough handling, arctic and tropic weathering conditions, and submersion tests. Another series of tests is aimed to improve legibility of container markings in daylight and darkness, and to increase legible life of markings under exposed storage conditions. Details of the study are avail-

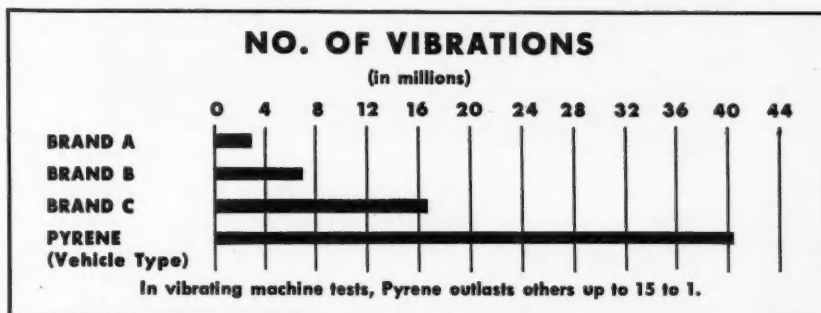
able on request to Technical News Letter, Room 2C-765 Pentagon Building, Washington, D. C.

## Continued Construction Urged

Construction and maintenance of military and important peacetime roads must not be neglected in the defense period ahead. Highway transportation may be the only form of inland surface transportation available should the United States be attacked on the mainland, members of the Truck-Trailer Manufacturers Association, Inc., were told by Russell E. MacCleery of Washington, D. C.

(TURN TO PAGE 188, PLEASE)

## Double THE LIFE OF YOUR FIRE EXTINGUISHERS IN BUS AND TRUCK SERVICE!



### PYRENE Vehicle Type Extinguishers give AT LEAST TWICE THE SERVICE LIFE of ordinary vaporizing liquid extinguishers!

The chart above tells the story. It represents the outcome of the toughest imaginable test—that of the vibrating machine. This machine punishes fire extinguishers by vibrating them 303 times per minute. That's about like roaring at 60 m.p.h. over a road strewn with concrete tank traps! And the Pyrene\* Vehicle Type Extinguisher outlasted all other major brands tested by at least 2 to 1.

Pyrene superiority is the result of *added construction safeguards*. In every 1 qt. and 1½ qt. Pyrene Vehicle Type Extinguisher, a special vibration dampener holds the pump mechanism firmly in place, protecting it against both horizontal and vertical vibration. And tough brass linings guard the valve housings in every spot where wear could occur. *Only Pyrene makes a special vehicle type extinguisher.*

Lower price doesn't pay when you get half the life. Buy on facts . . . buy Pyrene!

\*T.M. Reg. U.S. Pat. Off.

There's a *Pyrene* for every fire hazard



**PYRENE MANUFACTURING COMPANY**

589 Belmont Avenue

Newark 8, New Jersey

Affiliated with C-O-Two Fire Equipment Co.

## CCJ Reports . . .

Continued from Page 103

## Shell Oil to Expand

An accelerated expansion of oil distribution facilities, to raise the supply of petroleum products for both military and civilian use, will be completed by Shell Oil Company early in 1951. The program involves 49 new or expanded plants in 25 states, the largest ever undertaken by Shell, will add several hundred million gallons to the company's total petroleum storage and handling capacity.

### 1950 Domestic Motor Truck Factory Sales by G.V.W.\*

	5,000 lb. and less	5,001- 10,000	10,001- 14,000	14,001- 16,000	16,001- 19,500	19,501- 26,000	Over 26,000	Total
January	39,252	19,251	6,804	13,093	2,880	1,816	1,482	84,378
February	39,629	17,151	6,032	11,739	2,720	2,157	1,811	80,008
March	47,828	20,921	7,200	14,644	3,680	3,474	2,082	99,808
April	46,375	19,025	5,884	12,971	3,391	3,322	2,326	93,294
May	52,805	21,935	7,468	16,721	4,077	3,598	2,393	108,997
June	58,592	24,249	8,158	18,488	4,104	3,507	2,638	120,236
July	47,590	20,991	6,550	13,489	3,780	3,489	2,684	98,573
August	58,084	24,223	7,674	18,395	4,672	5,163	2,881	121,272
September	51,888	15,082	5,476	12,844	2,651	3,317	2,090	93,348
October	46,700	24,932	5,020	12,073	2,678	3,751	1,933	97,087
November	40,572	15,669	4,198	10,151	3,743	3,993	2,808	80,332
Ten Months—1950	529,615	223,429	70,464	154,608	38,376	37,587	24,698	1,078,700
Ten Months—1949	438,828	245,253	66,457	126,367	25,687	18,187	14,025	938,507

\* Automobile Manufacturers Association.

### 1950 Truck Trailer Shipments\*

Vans	October	Ten Months
Insulated and refrigerated.....	389	3,164
All other closed top.....	3,217	24,862
Open top .....	362	3,197
<b>Total—Vans .....</b>	<b>3,968</b>	<b>31,223</b>
<b>Platforms</b>		
With cattle and stake racks...	179	1,355
With grain bodies.....	66	564
All other .....	869	7,458
<b>Total Platforms .....</b>	<b>1,114</b>	<b>9,377</b>
<b>Tanks</b>		
Petroleum .....	426	....
All other .....	24	....
<b>Total—Tanks .....</b>	<b>450</b>	<b>3,190</b>
<b>Pole and logging</b>		
Single axle .....	188	1,179
Tandem axle .....	83	962
<b>Total .....</b>	<b>271</b>	<b>2,159</b>
Low-bed heavy haulers.....	173	1,470
Dump trailers .....	70	698
All other trailers.....	372	2,741
<b>Total—Trailers .....</b>	<b>6,420</b>	<b>50,834</b>
<b>Trailer chassis .....</b>	<b>237</b>	<b>1,922</b>
<b>Total—Trailers and chassis</b>	<b>6,657</b>	<b>52,776</b>

\* Industry Division, Bureau of the Census.

### 1950 Death Rate High

Only one state, North Dakota, in the nation showed appreciable decrease in fatal traffic accidents during the first 11 months of 1950. Seven other states report fewer highway deaths than in the comparable 1949 period, but only 1 to 5 per cent in the number of lives saved. At the same time, however, 10 states report that traffic fatalities had increased from 25 to 58 per cent. For the nation as a whole, highway deaths during this period averaged 10 per cent higher than in 1949.

(TURN TO PAGE 188, PLEASE)



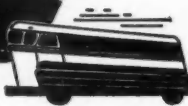
**"You should at least blow your horn before passing."**



THE CLEVELAND HARDWARE  
and FORGING COMPANY

**3264 East 79th St.**

### Cleveland 4, Ohio



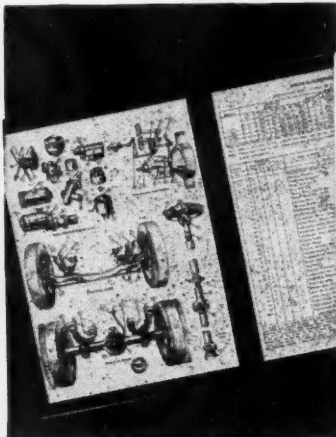
# Cost-Cutting Plan

## for fleet operators

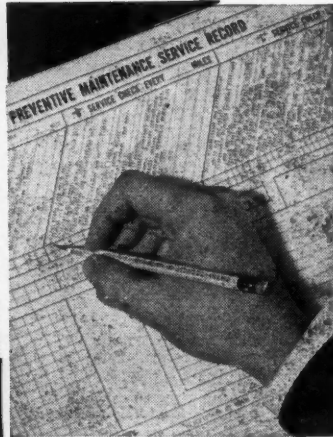
**SURE**  
and  
**DIRECT**  
as  
**1.2.3**



**1** Expert "trouble shooting." Let The Pure Oil Company's Technical Service Department provide a *free* Pure-Sure Analysis of your used motor oil . . . tell you whether you can extend filter change periods, correct faulty combustion, reduce engine wear, or improve engine cleanliness.



**2** Exact, correct lubrication. Use Pure Oil's exclusive under-chassis and under-hood Lubrication Guide Charts to insure correct, effective lubrication at every vital point. You'll say these unique lubrication charts are the most practical, easy-to-follow guides you've ever used!



**3** Systematize and simplify! Use Pure Oil's new and practical Preventive Service Records to simplify your own program of *preventive maintenance* and make it more efficient. These forms are designed especially for fleet operators and commercial users—for you.

### Pure Oil's great new line of cost-cutting lubricants



Be sure  
with Pure



The Pure-Sure Plan to cut your cost per mile includes: Pure's *service helps* to insure proper maintenance . . . Pure's *new fleet line* of oils and lubricants that meet all operating requirements of trucks, buses and tractors.

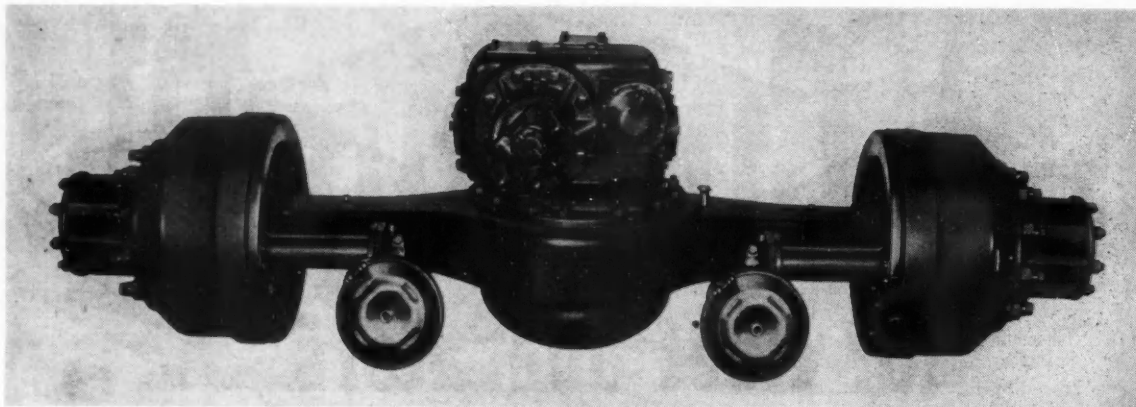
New Purol H.D., heavy-duty leader of the line, contains detergent-dispersants to keep engines *clean*, oxidation and corrosion inhibitors and a foam suppressor, for *sure* engine protection. Purol H.D. meets and exceeds the requirements of the new military specification MIL-2104.

For full details on the Pure-Sure Cost-Cutting Plan, and Pure Oil's great new line of fleet lubricants, see your Pure Oil salesman or phone your local Pure Oil office today!

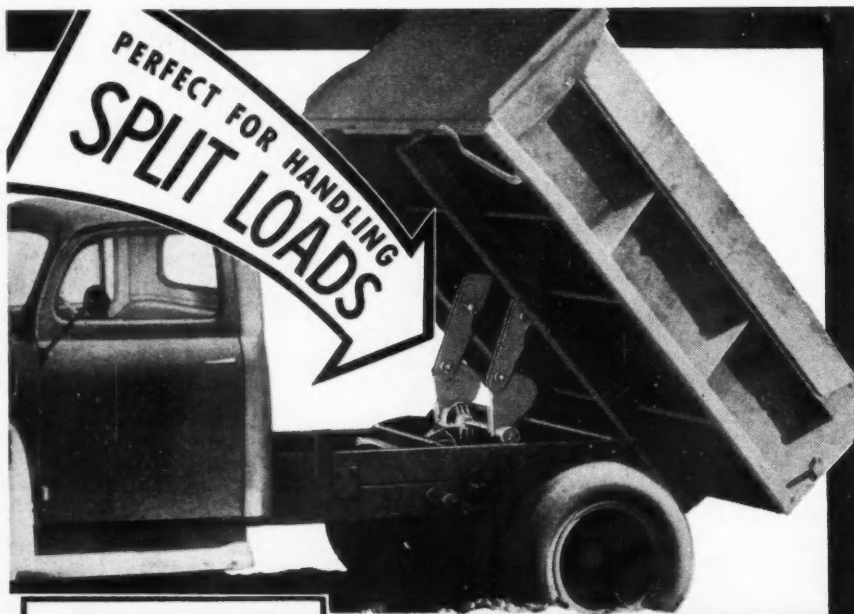
THE PURE OIL COMPANY • General Offices: Chicago

**new**  
**Purol H.D.**  
**THE OIL THAT CAN TAKE IT**

Be sure with Pure . . . fleet lubricants . . . gasolines . . . tires . . . batteries and accessories



*This heavy-duty two-speed hypoid-helical double-reduction rear axle features a top-mounted drive to help solve the drive line problems inherent in close-coupled vehicles. Increased height of the drive pinion serves to straighten out the line and eliminate troublesome angles.*



## DUBE 5-star FEATURES

- ☆ **NO HYDRAULIC FLUID**  
to congeal in winter or thin out under summer heat.
- ☆ **55° to 60° DUMPING**  
—self-locking in any dumping angle at the control of the driver.
- ☆ **600:1 REDUCTION**  
for greatest economy. Positive Power-Down as well as Power-Up.
- ☆ **ALL-WEATHER UNIT**  
operates at top efficiency from 70° below zero to 120° above.
- ☆ **SAFE—NO SLIPPING**  
—always maintains constant dumping angle.

Please send me without charge or obligation a copy of your new illustrated folder.

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

THE NEW MECHANICAL

## DUBE HOIST

with power up and power down

*DUBE has really done it! Here is a hoist with a 55° to 60° dumping angle that is ideal for coal haulers, spreading operations and tough construction jobs. It is self-locking in any dumping angle at the control of the driver. The DUBE hoist is 100% mechanical . . . has no hydraulic fluid to congeal in winter . . . operates at peak efficiency at 70° below zero. Its rugged construction and simple, foolproof design mean long, trouble-free service . . . low maintenance costs. Available for light, medium and heavy-duty trucks.*

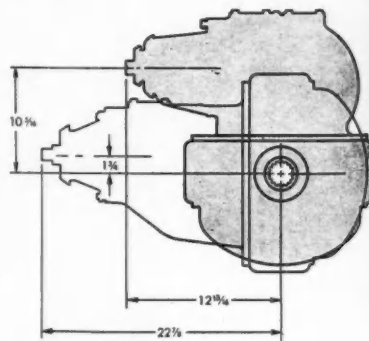
**SEND FOR FREE FOLDER**

**DETROIT MECHANICAL  
HOIST CORPORATION**

3502-12 WEST FORT STREET  
DETROIT 16 • MICHIGAN

## Timken Top-Mounted Final Drive Axle

A new top-mounted final drive, developed by Timken Detroit Axle Co., makes possible the use of a large engine and transmission in combination with a two-speed heavy-duty rear axle with a more or less "straight-line" drive. The new development eliminates propeller shaft angularity and length problems common to short wheelbase truck tractors. This R-330 series axle features decreased dimension from center line of the axle to the pinion shaft end, as shown in the accompanying diagram.



Designed with hypoid gearing, the assembly is light in weight and adaptable to a wide range of vehicles. Compressed air, vacuum or electric power shifts are available for actuation.

The application of this new R-330 Series rear axle is limited to tractor use where the maximum load on the tires at the ground will not exceed 18,000 lb—the rated capacity of four 11:00 x 20 tires. Internal parts, such as differential, gears and shafts are interchangeable with the company's conventional axles.

for cool, quiet

# POWER

LOOK FOR

# ALCOA LO-EX



when you buy replacement pistons



**CAST BY ALCOA  
FOR PISTONS OF EVERY TYPE**



T-SLOT



TRANS-SLOT



STRUT



TRUNK TYPE

Why pay the extra cost of inefficient power? Revive worn engines with aluminum pistons of ALCOA LO-EX!

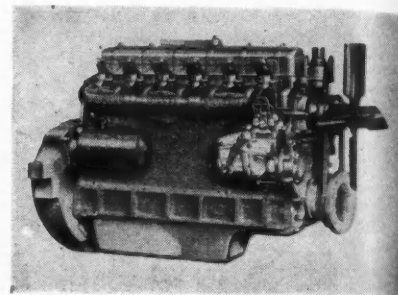
Fleet men who know pistons rely on this trademark as their guide to quality. It identifies tough, heat-treated pistons that fit properly at all temperatures. No hot spots! No lost compression! No wasted fuel! You get more haul per overhaul when you insist on pistons of ALCOA LO-EX — cast by Alcoa, finished by expert piston makers. ALUMINUM COMPANY OF AMERICA, 1847B Gulf Building, Pittsburgh 19, Pennsylvania.

**MORE HAUL PER OVERHAUL!**

# Waukesha Diesel Line Expanded

THE Waukesha Motor Co. has introduced a new Diesel engine—a 4¼ x 5-in. six of 425 cu in. displacement, and rated at 135 hp at 2800 rpm. The overhead valve engine uses an alloy

casting crankcase with heavy outside ribs at the base to insure stiffness and maintain alignment of all moving parts. Internally, the seven bearing bridges tied into the side walls with large-



radius fillets, and the thick upper and lower decks make the structure distortion-free, and provide support for the renewable wet type cylinder sleeves.

The spherical combustion chamber with its removable two-piece main chamber and twin swirl cups in the piston crown gives a control to the turbulence rate of the air charge during compression which it is said, practically gears the turbulence to the engine speed. This increases the rate of combustion as the engine speeds up and slows the rate down as the engine speed decreases. Sudden uncontrolled shock pressures are thus replaced with smooth, orderly combustion, and a decidedly moderate rate of pressure rise under all conditions of operation. This feature reduces operating and maintenance costs as well as insuring clean exhaust and low fuel consumption.

Other features are, Stellite faced valves and Stellite seats throughout; hardened renewable cylinder sleeves; aluminum four-ring pistons; seven bearing, 3½-in. drop forged crankshaft with hardened journals and crankpins; copper-lead high duty precision bearings; full pressure oiling system; American-Bosch injection system with single orifice pintle nozzles and single plunger injection pump; belt driven, front-mounted coolant pump with built in by-pass and thermostat; large coolant jacket clean-out plates on the side of the cylinder block.



## Why Does the Good Driver Like the Servis Recorder?

— because he knows it is  
NOT a "detective" to spy on him—  
but actually helps him, in two ways:

1. Its chart shows his full day's work—no time wasted anywhere—thus *proving* to the boss that he really is a good driver; naturally he likes that recognition and approval.
2. Also, he knows the SERVIS RECORDER helps to *even up the work* among the drivers. If he has too heavy a working schedule, and if the Recorder chart on another truck shows that it hasn't quite enough to keep it busy all day, the boss sees that and gives him relief by shifting some of his work-load.

### THE CHART

Here's the story of the  
day's work — all busy  
time and idle time  
—and Overtime, too.



For example, look at the Chart shown below. That truck wasn't working between 2 and 4 o'clock—standing idle somewhere for two hours!

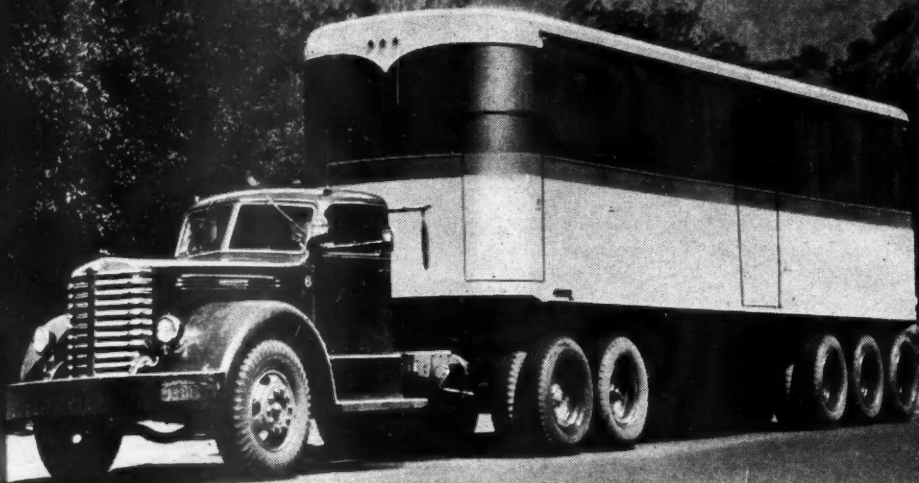
If such delays are frequent with that truck then it hasn't enough to do and it can easily relieve some other overworked driver. And the good driver knows that. Send for the full story. THE SERVICE RECORDER CO., 1375 Euclid Avenue, Cleveland 15, Ohio.

**The Servis Recorder**  
*The Good Driver's Best Friend*

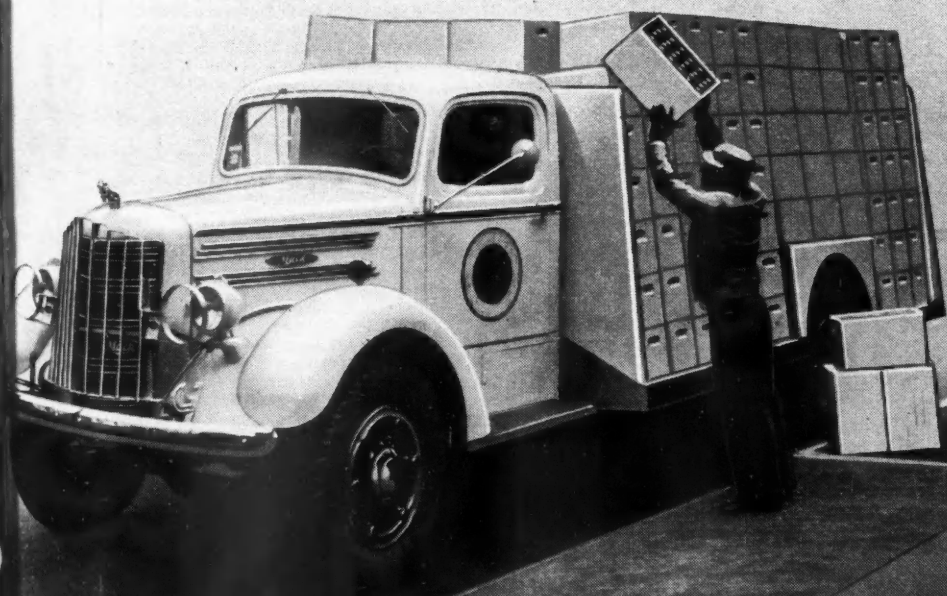


"Nothing like these cab-over-engine jobs, pal."

**LONG HAUL.** If your trucks operate over long distances with heavy loads at high engine temperatures, Sinclair SUPER TENOL can keep down deposits, keep valves and oil lines free, keep your engines clean.



# between Overhauls!

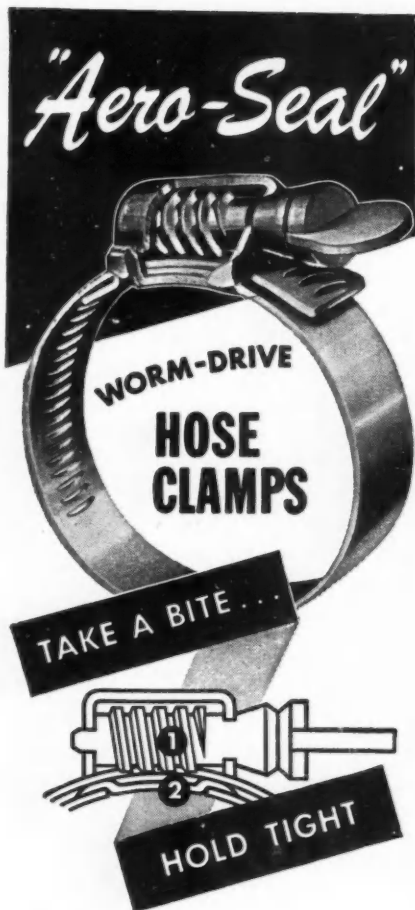


**STOP-and-START.** Long idling periods, sudden engine loading, lots of stops-and-starts are tough on engines, call for a specialized lubricant — Sinclair SUPER TENOL — to keep engines clean and maintenance low.

# for long or short hauls.

or write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, N.Y.

COMMERCIAL CAR JOURNAL, February, 1951



① At least 3 hardened steel threads always engaged in worm drive action in slotted band.

Clamp unscrews easily but will never work loose.

② Worm threads cannot touch or damage hose—curved saddle assures uniform sealing pressure around complete circumference.

- Long Life — use again and again
- Integral construction — no parts to lose
- Stainless steel bands resist corrosion
- Two types—screwdriver slot or thumb grip

**WRITE TODAY** for **FREE SAMPLE**



ANOTHER BREEZE MARK PRODUCT

**"Aero-Seal"®**  
**HOSE CLAMPS**

**BREEZE CORPORATIONS, INC.**  
45 South Sixth Street, Newark, N. J.

## New York Transit . . .

Continued from Page 56

probably the most thorough of its kind in the country. In addition to a very complete physical check-up, the applicant must furnish a detailed medical history on a questionnaire provided for this purpose. In addition to the physical—which includes serological and X-ray examinations—a simple mental examination is made to determine the applicant's emotional stability and mental attitude.

If these examinations show the candidate to be acceptable, the applicant is then given motor ability and psycho-physical examination.

The psycho-physical tests follow the same general procedures followed by the better bus properties, truck fleets and safety clinics in the country. They include the peripheral or tunnel vision test, glare resistance, and depth perception. We also give a hearing test, which is performed with an audiometer. Our minimum requirement for this test is 30 decibels at 500 cycles per second.

In place of the braking reaction test used by various fleets and clinics, we employ what is known as a motor ability test conducted with a special electro-mechanical equipment designed under the supervision of G. U. Cleeton for the American Transit Association. This equipment is shown in Figs. 2 and 3. It provides a sample of physical and mental coordination and performance under controlled conditions. It makes it possible to estimate, more accurately than by any other known test, the applicant's ability to follow instructions, his learning capacity, attention and reaction qualities, mental and physical coordination, and volitional control. A measure of these traits is not obtained separately but determined by the responses which the applicant must make to pass the test satisfactorily. The final result is an excellent index of the driver applicant's potential ability to do a satisfactory bus driving job.

In addition to employing a steering wheel, gear-shift lever, foot pedals and traffic signals, the motor ability test equipment also utilizes a special signal board having a series of small green, amber and red lights, layed out in a predetermined pattern on a large, black, sloping panel, as shown in Fig. 3.

The test is administered by our personnel instructor, Emil Girard. Shown in Fig. 2, it is being administered by assistant director of safety, John J. Moran. (Note: Mr. Moran is watching the angus recorder that is registering every movement made by Girard.—Ed.)

(TURN TO PAGE 114, PLEASE)

## Budd Wheel Distributors provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.  
ALBANY—Wheels, Incorporated  
ALBUQUERQUE—Wheels & Brakes, Inc.  
ATLANTA—Harris Automotive Service, Inc.  
BALTIMORE—R. W. Norris & Sons, Inc.

BIRMINGHAM—Wheel, Rim & Parts Co.  
BOSTON—New England Wheel & Rim Co.  
BUFFALO—Frey, the Wheelman, Inc.  
CHARLOTTE—Carolina Rim & Wheel Co.  
CHATTANOOGA—Harris Automotive Service, Inc.  
CHICAGO—Stone Wheel, Inc.  
CINCINNATI—Rim & Wheel Service, Inc.  
CLEVELAND—Motor Rim Manufacturers Co.  
COLUMBUS—Hayes Wheel & Spring Service  
DALLAS—Southwest Wheel, Inc.  
DAVENPORT—Stone Wheel, Inc.  
DAYTON—Rim & Wheel Service, Inc.  
DENVER—Quinn & McGill Motor Supply Co.  
DES MOINES—Des Moines Wheel & Rim Co.  
DETROIT—H. & H. Wheel Service, Inc.  
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.  
FARGO—Wheel Service Company  
FORT WAYNE—Wheel & Rim Sales Co.  
GRAND RAPIDS—Rim & Wheel Service Co.  
HARRISBURG—Standard Wheel & Rim Co.  
HARTFORD—Connecticut Wheel & Rim Co.  
HOUSTON—Southwest Wheel & Equipment  
INDIANAPOLIS—Indiana Wheel & Rim Co.  
JACKSONVILLE—Southeast Wheel & Rim Co.  
KANSAS CITY—Borbein, Young & Co.  
KNOXVILLE—Harris Automotive Service, Inc.  
LOS ANGELES—Wheel Industries, Inc.  
LOUISVILLE—Auto Wheel & Rim Service  
MEMPHIS—Beller Wheel, Brake & Supply Co.  
MILWAUKEE—Stone Manufacturing Co.  
MOLINE—Mutual Wheel Co.  
NASHVILLE—Beller Wheel, Brake & Supply Co.  
NEWARK—Automotive Safety Inc.  
NEW HAVEN—Connecticut Wheel & Rim Co.  
NEW ORLEANS—Southern Wheel & Rim Co.  
NEW YORK—Wheels, Incorporated  
OKLAHOMA CITY—Southwest Wheel, Inc.  
OMAHA—Morgan Wheel & Equipment Co., Inc.  
PEORIA—Peoria Wheel & Rim Co.  
PHILADELPHIA—Thomas Wheel & Rim Company  
PITTSBURGH—Wheel & Rim Sales Co.  
PORTLAND—Six Robblees', Inc.  
PROVIDENCE—New England Wheel & Rim Company  
RALEIGH—Carolina Rim & Wheel Co.  
RICHMOND—Dixie Wheel Co., Inc.  
ROCHESTER—Frey, the Wheelman, Inc.  
SALT LAKE CITY—Henderson Rim & Wheel Service  
SAN ANTONIO—Southwest Wheel & Equipment  
SAN FRANCISCO—Wheel Industries, Inc.  
SEATTLE—Six Robblees', Inc.  
SOUTH BEND—Wire & Disc Wheel Sales & Service  
SPOKANE—Bearing & Rim Supply Co.  
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.  
SPRINGFIELD, MO.—Borbein, Young & Co.  
ST. LOUIS—Borbein, Young & Co.  
ST. PAUL—Wheel Service Co.  
SYRACUSE—Colbourn Wheel & Rim Service, Inc.  
TACOMA—Six Robblees', Inc.  
TOLEDO—Wheel & Rim Sales Co.  
WICHITA—Borbein, Young & Co.

### EXPORT

CLEVELAND—C. O. Brandes, Inc.

### CANADA

CALGARY—Fisk Tire Service Ltd.  
EDMONTON—Alberta Wheel Distributors, Ltd.  
MONTREAL—General Automobile Equipment Ltd.  
TORONTO—Wheel & Rim Co. of Canada, Ltd.  
VANCOUVER—Wheels & Equipment, Ltd.  
WINNIPEG—Ft. Garry Tire Service Ltd.

# BEATING BREAKAGE

## AND BREAKDOWNS!

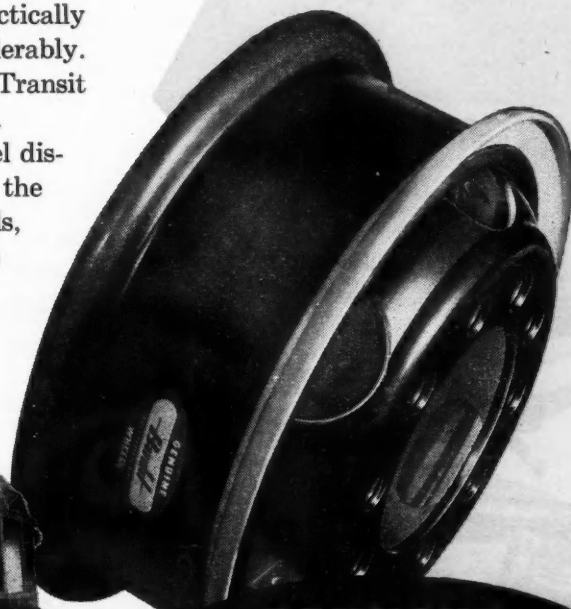
Tire trouble, wheel trouble and rim trouble—maintenance costs were going up and schedules were being interrupted. That's the problem that confronted Halvor Hansen, equipment superintendent of the Duluth-Superior Transit Company.

Then Bud Flewell of Wheel Service Company, Budd Wheel distributor in the Twin Cities and Fargo, got into the picture. A careful check revealed their 5.00S and 5.50S rims were too narrow and the wheels were too light for their operation.

He recommended a change-over to Budd 6.00 and 6.50 wheels with wide base, tapered bead seat rims. Initial tests showed bead failure and rim flange breakage to be practically non-existent. What's more, tire mileage increased considerably. The program was expanded and soon Duluth-Superior Transit should have its entire fleet rolling on the right wheels.

That's the advantage of dealing with a Budd Wheel distributor as a consultant. He knows wheels—knows the right ones to specify for any job. And in Budd Wheels, the only complete wide base line, he's got the right ones for the job. Why not have your wheels checked by the Budd distributor near you? His name is at the left.

The Budd Company, Detroit 14



GENUINE

**Budd**

COLD TAPERED DISC

WHEEL

## New York Transit . . .

Continued from Page 112

Each test given follows an established procedure employing five consecutive sequences, which increase in difficulty and complexity. In giving the test, the instructor puts the applicant at ease by explaining simply that all that is expected is the following of instructions he gives. The instructor usually gives a personal demonstration to show the applicant that the handling of the steer-

ing wheel, shifting lever or foot pedals is quite conventional. The instructor arouses the applicant's interest in the test by calling attention to the various lights, explaining that the simulated shifting or braking motions are to be performed under traffic-light conditions.

The test looks so simple that most driver applicants soon develop the attitude that there is nothing to it. From the physical standpoint, he is right. But as he goes through the various motions, in compliance with Emil's instructions, the electric recording apparatus provides a continuous graph of

the driver's timing and coordination of vehicle operation under traffic conditions.

A sample of the graphic record obtained is shown in Fig. 4. Lines A, B and C record changes in the green, red and amber traffic signal flashed before the driver. As each light is turned on, the driver is told to go through certain of the normal processes of clutching, shifting, etc., recorded at D, E, F—G in requested sequence as the lights change. Because the recording is inconspicuous and out of sight, the driver applicants do not develop the degree of nervousness apparent in other tests where the examiner has a pad of paper and pencil and keeps making notations within the driver's range of vision. Consequently, this test provides a more accurate picture.

While this motor ability test is a performance test, it is not a work sample in that the instructions given by the examiner do not follow vehicle operation or control sequences. In fact, the instructions are contrary to vehicle operation practices. Natural as well as unnatural sequences are given the driver applicant, to determine his ability to follow instructions, his ability to remember what he is told; as well as his interest, attitude, approach, effort, and temperament. In fact, these factors are just as important as the prospective driver's speed and coordination of the various controls before him.

The complete test takes about 45 minutes. Scoring is in terms of accuracy and speed of reaction. The driver, applicant must make the correct movement for each given light signal, and he must do so in relationship to two time intervals—the initial response time and the time elapsed to perform the movement. These related time lapses are shown in Fig. 4. Therefore, it will be seen that when the "C" lights flashed, the driver was obliged to clutch, turn steering wheel, operate gear shift lever and apply foot brake. Inasmuch as the graph is charted from bottom to top of the illustration, it will be seen that this "C" light sequence was performed twice, and, the second time, with better speed of reaction than the first time.

The test is rated in the usual 100 per cent grade for perfect results. Our requirement for passing the test satisfactorily is 65.

If a driver candidate has passed these and his previous examinations, he is turned over to the personnel driving instructor, who not only acquaints him with the operation of our particular type of vehicle but also acquaints him with the rules, regulations and general policies of our company. Then follows the break-in and probationary employment period outlined in our description of (TURN TO PAGE 116, PLEASE)

# ECHLIN HEAVY DUTY

## *Ignition Contacts*

### FOR HEAVY DUTY FLEET SERVICE



**Careful and exhaustive tests** have been made to determine for you which Trucks and Cars in Fleet operations should be equipped with HEAVY DUTY Contacts. ECHLIN has the answer and the precision-built Contact replacements to give you extra performance and extra contact life. Ask for the facts and get your copy of the new ECHLIN Truck & Bus Electrical Parts catalog.

**EXTRA TUNGSTEN LIFE**  
Mirror-finish Tungsten retards collection of dirt... guards against arcing, pitting and oxidation.

**EXTRA CONDUCTIVITY**  
Assured by copper Conductor Strip, standard on EVERY ECHLIN Contact.

**EXTRA SPRING LIFE**  
Full-floating Spring reduces breakage and bushing wear... insures perfect alignment.

**EXTRA PRECISION**  
ECHLIN tolerances are the closest-known to the industry... ECHLIN precision a famous EXTRA!



# ECHLIN

## *Ignition*

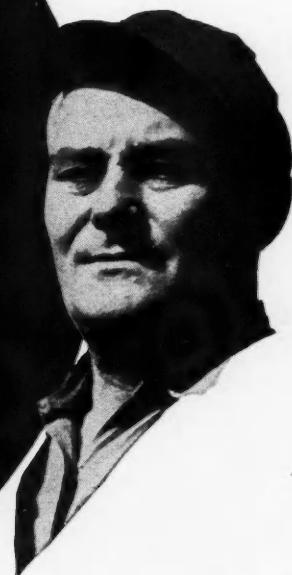
CONTACTS  
COILS\* CONDENSERS  
& OTHER AUTOMOTIVE ELECTRICAL PARTS

**ECHLIN MANUFACTURING COMPANY**  
234 EAST STREET • NEW HAVEN 5, CONN.



J. H. HARRISON,  
Garage Foreman,  
NIGHTHAWK  
FREIGHT SERVICE  
says:

*"the Rotary  
Air Compressor  
sold us on  
Wagner  
Air Brakes!"*



Men like Mr. Harrison who are responsible for the economical maintenance of their fleets can tell pretty quickly whether or not equipment is operating efficiently and with minimum maintenance. In his many years of experience, J. H. Harrison has learned to know Wagner Air Brakes and their ability to give continuous, safe, troublefree service. That's why he wrote—"Maintenance economy is a factor that must be considered if over-the-road fleet operations are to be profitable. For this reason we are especially careful in the selection of all material and equipment used on

our fleet. It must be of high quality to enable it to stand up under hard use. Our experience with Wagner Air Brakes has been very satisfactory. One of the features that sold us on Wagner Air Brakes is the Rotary Compressor. After years of operation we have not had a single compressor failure."

You can get real brake safety and economy by installing Wagner Air Brakes—the air brake system with the Rotary Compressor, on your present equipment. When ordering new vehicles specify WAGNER Air Brakes. Write for Bulletin KU-201.



**Wagner Air Brake Users are our Biggest Boosters.**

## Wagner Electric Corporation

6470 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

(Branches in Principal Cities and in Canada)

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID . . . NoRoL . . . CoMaX BRAKE LINING . . . AIR BRAKES . . . TACHOGRAPHS . . . ELECTRIC MOTORS . . . TRANSFORMERS . . . INDUSTRIAL BRAKES



## New York Transit . . .

Continued from Page 114

our "old" driver selection and training method. Plus a full day's attendance in our safety school.

If the tests show that the applicant is eligible except for a minor sub-standard physical condition—such as weak vision in one eye—he has this explained to him. If the applicant so desires, we assist him in making arrangements to correct the particular condition. When

corrected, and only then, he goes through the same break-in and probation periods given to the other driver candidates.

### Tests Eliminate Poor Risks

ONE of the greatest advantages obtained from these tests is that potentially poor drivers can be eliminated before they have a chance to prove it in terms of frequent and costly accidents. We have no means of determining how much these drivers would have cost us in the way of claims, but it is safe to speculate that, at the very mini-

mum, the expenses incurred by these applicants, if they were employed, would certainly pay many times over for the equipment used and testing time expended by our new procedures. Our records show that more than one third of the men examined would not have been good and safe drivers by any accepted standard of rating.

One way to evaluate results on a dollar-and-cents basis, other than potential accidents costs, is to consider the costs of training a bus driver. Figures show that this cost ranges from \$300 to \$500. It is vitally important that this kind of money is spent only on the kind of drivers who would be an asset to the company and not a liability.

### Performance Comparison

IN AN effort to obtain specific data as to the value of these improved methods of driver selection and training, a very interesting study was made in 1949. The records of 40 drivers employed under our previous or "old" system were selected and studied. Then records of 40 drivers employed in 1949 under our new system of tests and training were selected and studied. The drivers in each group were in the same divisions to provide comparable conditions of routes, terrain and traffic. Further, the studies covered identical months of the year to permit similarity of weather conditions. Even the normal working hours for these periods and groups of drivers were compared to provide identical comparisons in this regard.

Having thus equalized all possible physical conditions, a summary of accidents of drivers in the two groups was made. The findings are shown in the following table:

Classification of Accidents by Type

	Group "A" (Old Selection Method)	Group "B" (New Selection Method)
Total Number	229	128
Non-Preventable	146	100
Preventable	84	28

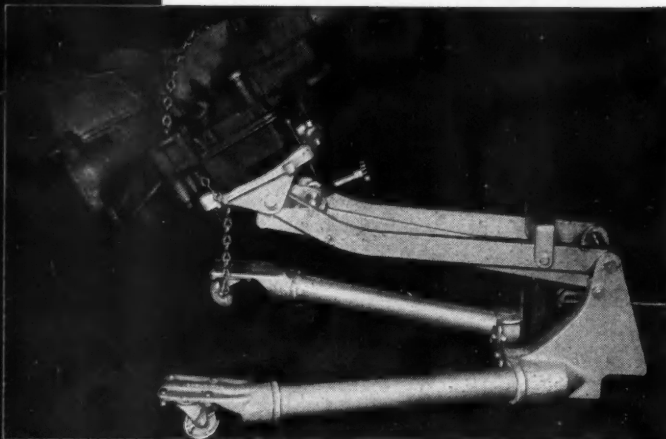
This table not only shows that the total number of accidents reported for Group B, selected and trained under our new standards, was less by 44 per cent—but that Group B also had 66 per cent fewer preventable accidents, showing a considerably higher ability in avoiding accident-producing situations. This certainly is a measure of skill and physical-mental alertness of this group.

### All Accidents Reviewed

WHEN an accident occurs, our drivers follow a prescribed procedure. If the accident is of a minor nature, the driver does his best in securing names of witnesses, gathers the particulars of occurrence and reports this to the first supervisor he sees on the road. Then  
(TURN TO PAGE 118, PLEASE)

# AEROL

**MOST VERSATILE  
UNIT LIFT BUILT  
AT A PRICE  
YOU CAN AFFORD**



AEROL LIFT (floor model) holds unit securely even in tilt position.

**REMOVE  
INSTALL  
POSITION**

TRANSMISSIONS

DIFFERENTIALS

GAS TANKS

SPRINGS

CRANKCASES

DRIVE LINES

UNIVERSAL JOINTS

AXLES

MOTORS

Do any under-chassis job—faster and easier—with the AEROL LIFT. The AEROL LIFT is built for quick, one-man operation—handles the heaviest truck transmission—or the lightest unit. Brings units to bench height (37"). Hydraulic jack removable for use when AEROL LIFT is not needed. Order the floor model or the 2-post hoist model.

### THE CLEVELAND PNEUMATIC TOOL CO.

Automotive Division

3769 E. 77th Street

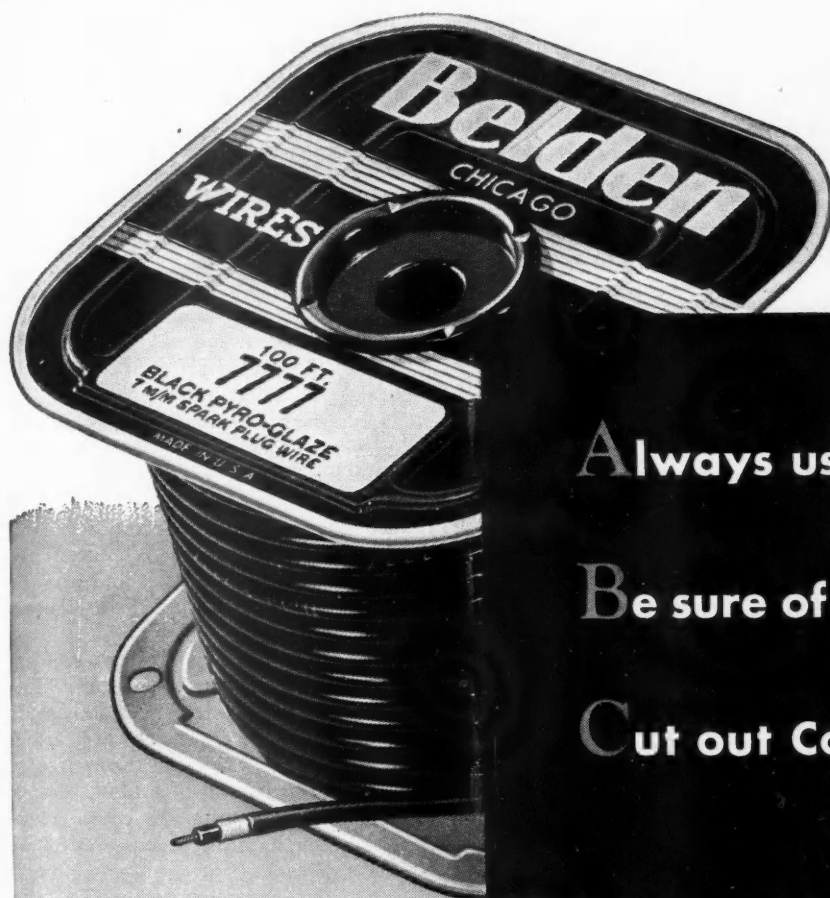
Cleveland 5, Ohio

Please send me more information on the AEROL LIFT.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

Send  
for  
Catalog  
Today



Always use the Right Wire

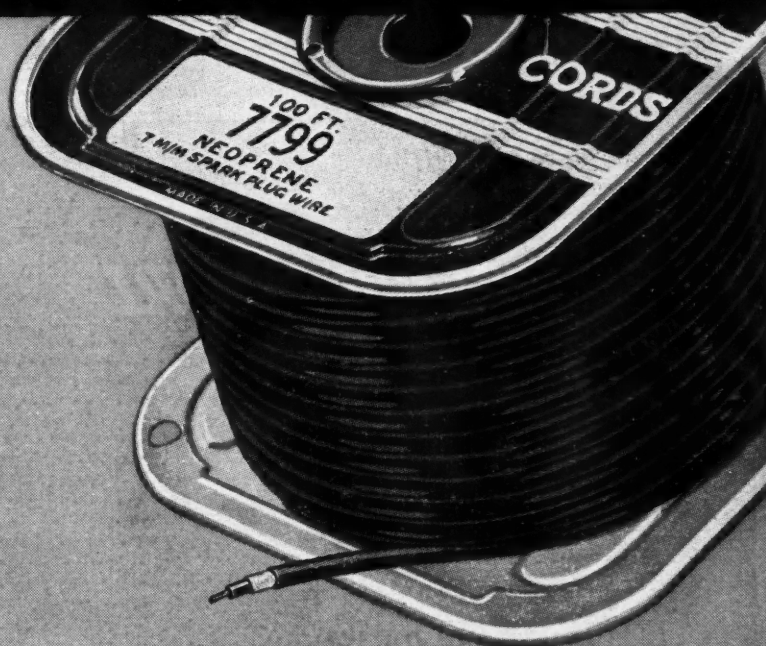
Be sure of a Profit

Cut out Comebacks

Give the spark plugs a chance. Every time you tune up a car, check the spark plug wires. Every time you install new plugs, put in new wires too. Old wires leak power, waste gas. New wires invariably restore pep and power.

There is a Belden Spark Plug Wire for every\* requirement. On 100-ft spools—or in timesaving sets. For plus profits, minus all complaints, specify Belden Spark Plug Wire.

Belden Manufacturing Company  
4695 W. Van Buren Street  
Chicago 44, Illinois



*Sell* — — —

**Belden**  
*Automotive* **WIRE**

**BATTERY CABLES • SPARK PLUG WIRES • LIGHTING WIRES**

## New York Transit . . .

Continued from Page 116

makes out a complete report when he returns to the garage.

In the event of a major accident, the driver must telephone our "report clerk" immediately. The report clerk notifies the divisional superintendent, contacts one of two safety patrol cars via radio telephone and contacts one of three transportation radio patrol cars. In the meantime, the driver is

making every effort in securing witnesses.

As soon after the accident as possible, the driver is called into the superintendent's office and the accident is discussed in detail. The safety department is supplied with a complete report and, when the accident is one of a questionable or preventable nature, a formal hearing is arranged in the divisional superintendent's office. Those in attendance being the superintendent, safety instructor, driver and union representative. At this hearing, the responsibility for the accident is definitely

placed. If preventable to the driver, disciplinary action is decided upon. Accidents that are marked as preventable against a driver, no matter how slight, deprives said driver of a Safe Driving Award (lapel pin and card).

### Retraining Follows Accidents

**PRACTICALLY** every preventable accident results in corrective guidance and instruction for the driver to avoid repetition under similar or identical conditions in the future. Normally, this means that the driver is obliged to attend our safety clinic for retraining. Each driver is given special attention and receives specialized instructions.

We have found this procedure highly successful. The percentage of drivers having accidents after given a retraining course is quite low. We have found that if they come back again, it may be a year or two later, and for a different reason.

Drivers intensely dislike accident hearings and retraining periods. They do their best to avoid repetition because the attendant inconvenience at hearings causes them to gripe—at themselves, of course. Further, it is a blow to their vanity to be required to go to school when they consider themselves to be expert drivers.

### Other Phases of Program

**I**N addition to driver selection and training program outlined, we avail ourselves of all the standard practices in keeping our drivers safety conscious. We have group safety discussions. We use safety films, both still and moving pictures. We use safety bulletins which are posted in all garages, shops, driver rooms, etc. Drivers are constantly spot-checked by driving instructors.

And, of course, we participate in safety contests in the Greater New York area so that our drivers can gain the recognition they deserve. For two consecutive years we were awarded the highest accident reduction reward. Whether or not we will get this award for the third consecutive year, we have no way of knowing at this time. As this is being written in the first week of the new year, it will be several weeks before we know our standing in this category. We have high hopes, as our 1950 record of 16.1 per cent is better than our 1949 record of 15.9 per cent.

**END**

Please Resume Reading Page 57

ccj

Safety Sadie: "My, my, how quickly you learned to drive your new car. Why you're handling it just like a veteran."

Catty Cora: "How do you know, have you ever seen me handle a veteran?"



## America's Largest Selling Oil and Grease Absorbent!

# SOL-SPEEDI-DRI

Send the coupon for free sample of SOL-SPEEDI-DRI, the oil and grease absorbent that makes floors safe for walking, safe for working. Make your own comparisons. You'll see why SOL-SPEEDI-DRI is used by more shops than any other brand. Pound for pound, dollar for dollar, it gives you more for your money, all factors considered.

Warehouse stocks maintained in principal cities of the United States and Canada.

Inquirers in New York, New England, and New Jersey should write to Speedi-Dri Corp. Elsewhere in U.S. to Waverly Petroleum Products Co., 1724 Chestnut St., Philadelphia 3, Pa.

**SPEEDI-DRI CORP., 210 W. Washington Sq., Phila. 5, Pa.**



### FREE SAMPLE:

Fill out the coupon and mail today for big, free sample.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

CCJ 2-51

## Van Body . . .

Continued from Page 63

From actual experience, it has been found very important to build bodies from a limited number of different parts because it permits much lower investments in inventory. This makes such savings available as additional operating capital, reduces inventory control, warehousing, and virtually eliminates delays occasioned by complex stock requirements. Further, very definite direct productive labor savings in both time and money are realized simply because the workmen are more efficient, and learn to build bodies quicker by becoming more familiar with the use and application of fewer different parts and, in many cases, more simplified and repetitive operations.

### Jig Expedites Assembly

THIS method of production is tied-in at the very beginning of the manufacturing procedure to a very simple assembly jig, as illustrated, which is completely flexible to most all body types. With one very simple setting of this jig, the basic overall dimensions of the body are established in such a manner as to permit jig assembly of the roof, sides and understructure with this one setting. Layout, cut-off and framing of the component assemblies is accomplished by a two-man team. This then permits, with few exceptions, unit sub-assembly in a convenient, accurate and efficient manner; even on single custom bodies as well as small or large quantity runs.

Once off the jig, framed and on roller trucks, the different type bodies may pass down a properly organized and orderly production line. This has many advantages, such as material accumulation at the location on the line where it will be used, and, probably more important, full advantage of specialized labor may be taken where men, trained to do one or more operations typical to any type body, perform this operation as the bodies pass through their work station or as they move from body to body, whichever the case may be.

### Advantages of Corner Liners

MOST of the preceding cost-saving possibilities are further accomplished by the use of a very simple section which has been identified in the illustrations as Basic Corner Liner; as noted on the isometric section of the typical body corner and on the small cross-section of the main jig frame.

This section is used for the four vertical corner posts, as well as the roof

corners. The corner liner section does the following: Eliminates roof bow corners, adds structural strength, gives clean square inside corners to the entire body, and greatly simplifies the installation of insulation in roof and side walls regardless of its thickness. This same section further provides an accurate, effective and simple hold point with the jig, as is shown in the small jig cross section.

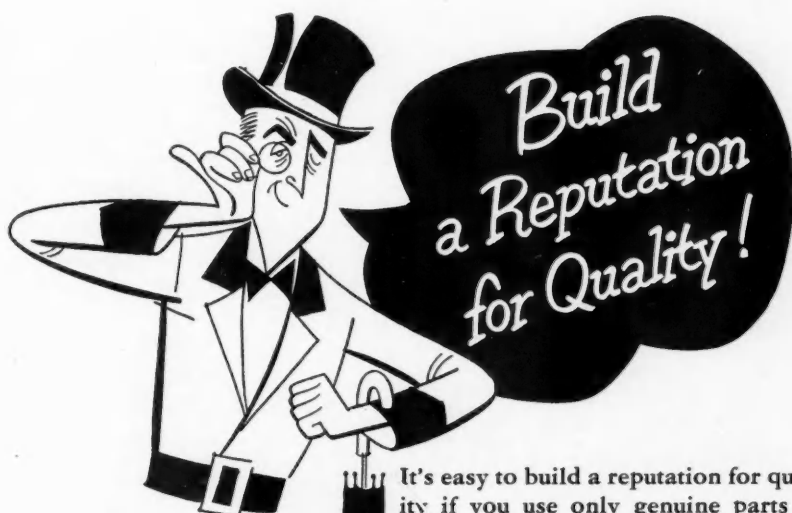
### Minimum Types of Parts

TO KEEP the number of different parts to an absolute minimum,

square tube is used for both posts and roof bows, so that the only other different basic frame materials used are high and low cross sills, rub rail and door-opening sections.

Still another very important point is that by the use of these very carefully selected small number of different parts, the expensive operations of notching, mitering and fitting of matched parts, gussets, clips, and etc., are almost completely eliminated. Practically all parts required to be cut to length need only a simple straight cut-off operation.

(TURN TO PAGE 154, PLEASE)



use only  
**FACTORY NEW  
GENUINE  
BENDIX DRIVES  
and  
PARTS!**



**Bendix Drive**

ECLIPSE MACHINE DIVISION of  
ELMIRA, NEW YORK

Export Sales: Bendix International Division, 72 Fifth Ave., New York 11, New York



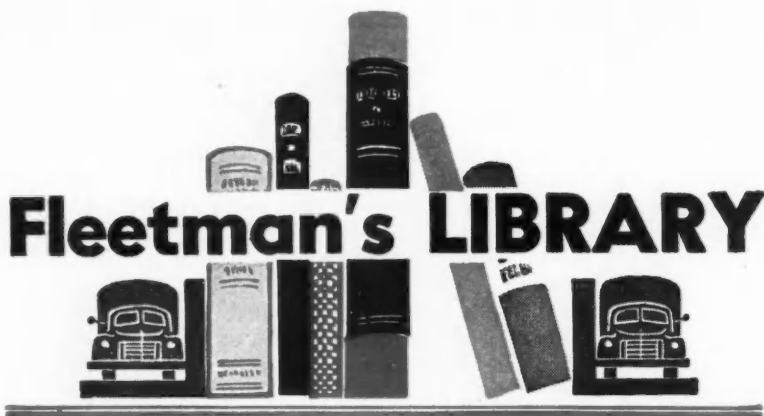
It's easy to build a reputation for quality if you use only genuine parts in your repair work. For example, when you service Bendix\* Drives be sure to use only *factory new* Bendix Drives and Parts. This means your customers will get the same dependable performance that is built into every original Bendix Drive—performance proven by over 85,000,000 installations. Insist on *factory new* Bendix Drives and Parts when you order from your distributor.

\*REG. U.S. PAT. OFF.

**PUT THIS IN THE BANK**  
When you install a new Bendix Drive, return the used drive together with the credit exchange tag to the Bendix Central Distributor—it's worth 50c to you in merchandise credit.



# Fleetman's LIBRARY



*Better Engine Performance  
Starts Here!...*



**Scientifically Engineered**

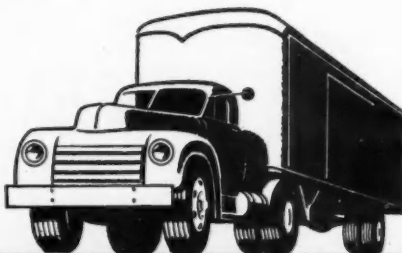
## MARVEL MYSTERY OIL



More than thirty years of constant scientific research and experimentation by Emerol Engineers have made Marvel Mystery Oil the best specialized automotive lubricant. In modern commercial engines, Marvel Mystery Oil is a must!

- Stops dry firing in upper cylinder area
- Protects rings, valves and pistons
- Prevents costly teardowns
- Provides smoother engine performance

Marvelize your fleet with Marvel Mystery Oil. Save time and money!



Ask your jobber . . . or write for free information. Dept. 186.

**EMEROL MANUFACTURING CO., INC.**  
242 West 69 St., New York 23, N. Y.

CAB AND CARGO HEATERS made by Hunter Mfg. Co., Cleveland, are described in a 4-page, 8½ x 11 catalog folder just published. The material covers both cab and cargo gasoline burning heaters and coolers.

"THE STORY OF DUCO," a pamphlet prepared by DuPont, Wilmington, Del., tells the story of "Duco" in pictures. The story includes recent experiments made with paint and painting methods of 30 years ago compared with modern.

A MASTER LATHE CONVERTER is described in a booklet prepared by Master Mfg. Co., Hutchinson, Kansas. When mounted on a lathe or turret, the device does milling, boring, drilling, grinding and slotting operations.

"PROCEDURES AND EQUIPMENT FOR ARGON METAL ARC WELDING" describes the apparatus for a new welding method, which uses argon gas to shield the consumable filler metal electrode and the welding area. Write to The Linde Air Products Company, 30 East 42nd Street, New York 17, New York.

"NEW ALFCO" is the title of a folder that tells about a new "Fire Gun" which is made to aim like a gun, operate with a trigger, and is light enough to hold in one hand. Write to American La France Corp., Elmira, N. Y.

WELDING ALLOYS CHART is offered by Eutectic Welding Alloys Corp., 40 Worth St., New York. It is a revision of the 1950 wall chart in the form of a six-page folder which can be filed or bound, or unfolded to a chart 11 x 23 in. for wall mounting.

COLUMBIA TRACTOR, a small, all-purpose job for moving trailers is described in a four-page folder complete with specifications and blueprints, published by Columbia Truck and Equipment Sales, Inc., New York.

TAXATION PRACTICES are the subject of a study made by National Highway Users Conference, National Press Bldg., Washington 4, D. C. A report of the study is available, entitled "The Ton-Mile Tax and Related Third Structure."

DELTA-MILWAUKEE 7-IN. METAL SHAPER is described in a booklet prepared by Delta Power Tool Division of Rockwell Mfg. Co., Milwaukee, Wis. Features of the bulletin include complete specifications, illustrations of the kind of work that can be done with the machine. Ask for bulletin AD 615.

BELLOWS AIR DEVICES, a 36-page punched booklet by The Bellows Co., Akron, Ohio, gives the story of the use of air controlling devices in various industrial and shop machines.

TOWMOTOR ELECTRIC PALLET TRUCK is pictured in a booklet printed by Towmotor Corp., Cleveland, Ohio. It illustrates the new Model "W" compact job that is much smaller than standard models yet is said to be able to take loads up to 4000 pounds.

BAKER FORK TRUCKS have a new model which is described in a 9-page bulletin released by Baker International Truck Division, Baker Rauling Co., Cleveland.

# Raybestos

## OFFERS FLEETS

### **The Answers to Engineering Service Needs and the Promise of Product Performance**

Raybestos provides a complete fleet engineering service, with valuable technical data on brake block installation; practical information to give your fleet more efficient brake block results; specific fleet recommendations based on careful surveys. Write us for this complete Raybestos Fleet Engineering Service.

In fleet operation, you can rely on Raybestos for less down-time, greater safety, quieter operation, longer life, increased economy. Insist on Raybestos Brake Blocks and PG Truck Sets—both factory-packaged with the right materials for every installation—as well as Raybestos Heavy-Duty Clutch Facings. They are all proving ground tested to assure you of perfect performance.



# Raybestos

Raybestos Division of

RAYBESTOS-MANHATTAN, INC., Bridgeport, Conn.



**AMERICA'S BIGGEST SELLING BRAKE LINING**

RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hoses • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Sealing Belts

# '51 Dodge Models of B-3 Series . . .

Continued from Page 73

vantage is a reduction in exhaust back pressure and longer valve life.

In addition, certain detail changes have been made in some of the eight engines for better temperature control and elimination of hot spots. The top edge of cylinder bores on the intake valve side has been rounded off; exhaust valve seat inserts have been

deepened; and exhaust valve guides changed to bronze.

On twin carburetor engines Dodge provides three fuel filters, two oil bath air cleaners, and two velocity governors. Short intake manifolds run between each carburetor and individual intake ports to assure equal distribution of the fuel mixture. A balance tube con-

nects the two intake manifolds to keep the engine running smoothly by equalizing pressure in each carburetor-manifold system.

## Some Power-Train Changes

**T**HE clutch set-up on B, C, and D models is of interest. With fluid drive the 10-in. clutch is standard; without fluid drive, the 10-in. clutch is supplied with a three-speed transmission, while an 11-in. clutch comes with the four-speed transmission. An optional four-speed synchro-shift transmission also will be available.

Brakes have been improved throughout the line, one feature common to all models being anodized brake cylinders to resist rust and corrosion. On all models from 1½ ton up a new type of lining is used. This Cyclebond, molded tapered lining greatly reduces the tendency for brakes to grab or squeal. It gives smoother, more even action with better stopping ability.

Vacuum booster is available on medium tonnage and is standard on high tonnage models. Air brakes are available on all high tonnage models and are standard on the VX and YX six-wheel models.

All the new Dodge trucks are equipped with an independent parking brake on the rear of the transmission. On the B and C models the linkage has been redesigned to give more positive action. On H and HH models the parking brake is larger and more effective.

Front axle and steering improvements on B, C and D models include worm and roller steering gear, larger diameter king pins while the D model has a heavier and more rigid tie rod. Many models of 1½ ton and up also have the new worm and roller steering gear to provide easier steering with less wear.

Many models of 2½ tons or larger have increased rear axle ratings to provide adequate capacity for the increased GVW and GCW ratings. To provide greater strength F models have a deeper frame. Frame reinforcements are now available as extra equipment on G, H and HH models.

Other mechanical features of interest are: On G models with 192-in. wheelbase, the two-piece prop shaft has been replaced with a three-piece shaft to reduce noise and vibration. On the Power-Wagon the mounting angle of the two-speed transfer case has been changed to improve prop-shaft angularity. Moreover, the case is now rubber-mounted to reduce noise and vibration.

Apart from the mechanical features outlined briefly above, the new B-3 Series of Dodge trucks boasts new styl-

(TURN TO PAGE 126, PLEASE)

For rapid, sure-fire readings you can't beat Central's Read-Rite Micrometer. There's no guesswork or chance of costly mistakes — the Read-Rite almost reads itself. As you turn the thimble, numbers in the windows give the measurement at a glance, eliminating the computations usually required in taking micrometer readings.

Think what the direct-reading feature can mean in speeding up measurements and eliminating costly errors! The Read-Rite is a real time and money saver — it pays for itself on the first major job and it's made to give a lifetime of Central Certified Accuracy.

The Read-Rite is available in two polished frame models, 0 to 1" (illustrated) and 1" to 2", and six black enameled frame models with a combined range of 0 to 6". See your jobber or write for bulletin.

**THE CENTRAL TOOL COMPANY**  
474 WELLINGTON AVE., CRANSTON 10, R. I.

FOR HALF A CENTURY  
SPECIALISTS IN FINE MICROMETERS



# UNIFORMITY

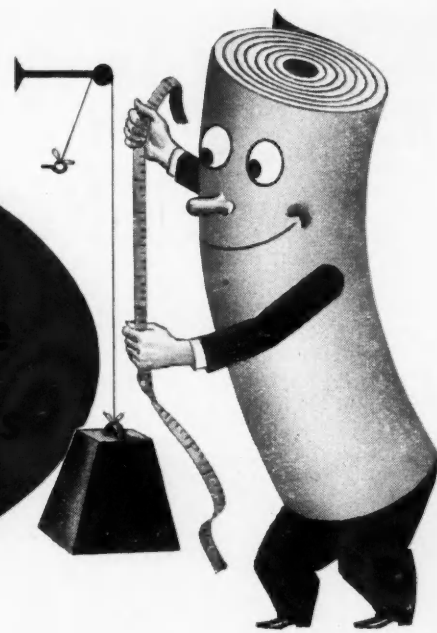
*Makes the Big Difference*

## TRUCK COVER

*Fabrics*

**MT. VERNON  
EXTRA**

**Gives You Greater Fabric Uniformity**



The greater uniformity of Mt. Vernon Extra Duck—the straight, smooth, weather-tight seams made possible by its even selvages—mean added cargo protection, longer wear, lower repair and replacement costs.

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**TURNER HALSEY**  
COMPANY  
*Selling Agents*  
40 WORTH ST. - NEW YORK

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**Woodberry  
Mills**

# LIFT THE GIANTS

...with New Zip  
and Ease!



**Fastest seller in its class . . . because it's  
the only MODERN extra-heavy-duty Jack!**

Here's the Jack that's *different* from all others which aim to handle extra-heavy-duty vehicles. *This* super-lift has a top saddle height of 24 $\frac{1}{4}$ " — to eliminate blocking. It is surprisingly easy to maneuver . . . because the one-piece malleable side plates are shaped to create strength *without the handicap of excessive bulk and weight*. And its 7 $\frac{1}{2}$  tons of authentically-rated power *safely and easily* raise wheel loads of ALL trucks, buses and trailers permitted on the highway. Order an S-15 from your jobber. Put new speed in your shop!

**MODEL S-15**  
**7 $\frac{1}{2}$ -Tons**

of authentically-rated power

• Manual effort is reduced by the "Feather Touch" principle.

• Jacking action is fast, because of "Lightning Lift."

• The LONG handle makes for easy load-spotting.

• Only 324 lbs. of weight! All controls are at the handle top.

# BLACKHAWK

*A product of BLACKHAWK MFG. CO., Dept. J-1121, Milwaukee 1, Wis.*

## '51 Dodge . . .

*Continued from Page 124*

ing both inside and out. A new grille formed by two horizontal louvers has wide spaced headlights located in the top of the grille panel. Large parking lights directly beneath the headlights are designed for the addition of flashing turn signal lights at the owner's option. A chromium plated medallion has been added in the center of the grille, connecting the two grille bars.

Further driver convenience and comfort is offered by redesigning seat cushions and backs, providing thicker seat pad cushions and contoured seat backs. In addition, steering wheel angle has been changed for greater comfort and is designed to accommodate a turn signal control. A horn ring is standard equipment on  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and 1-ton models.

Under-hood accessibility has been greatly improved on conventional models by removing the radiator tie bar and fastening the hood prop to the dash. This gives a clear and unobstructed working space under the hood.

On B, C and D models a choice of either low-side or high-side pick-up bodies may be made. Lower loading height of express bodies has been made possible by redesigned rear springs. In addition, easier loading is provided in the  $\frac{1}{2}$ -ton panel body by lowering the floor and depressing the rear bumper upper flange to provide a step.

The 1951 passenger cars have their share of Dodge improvements. Greater attention has been placed on riding comfort by new shock absorber models. Each model has its own series of improvements.

There are six body styles in the Coronet series (132 $\frac{1}{2}$  in. wheelbase) a Meadowbrook four-door sedan on a 123 $\frac{1}{2}$  in. wheelbase, and three body styles in the Wayfarer series with a wheelbase of 115 in.

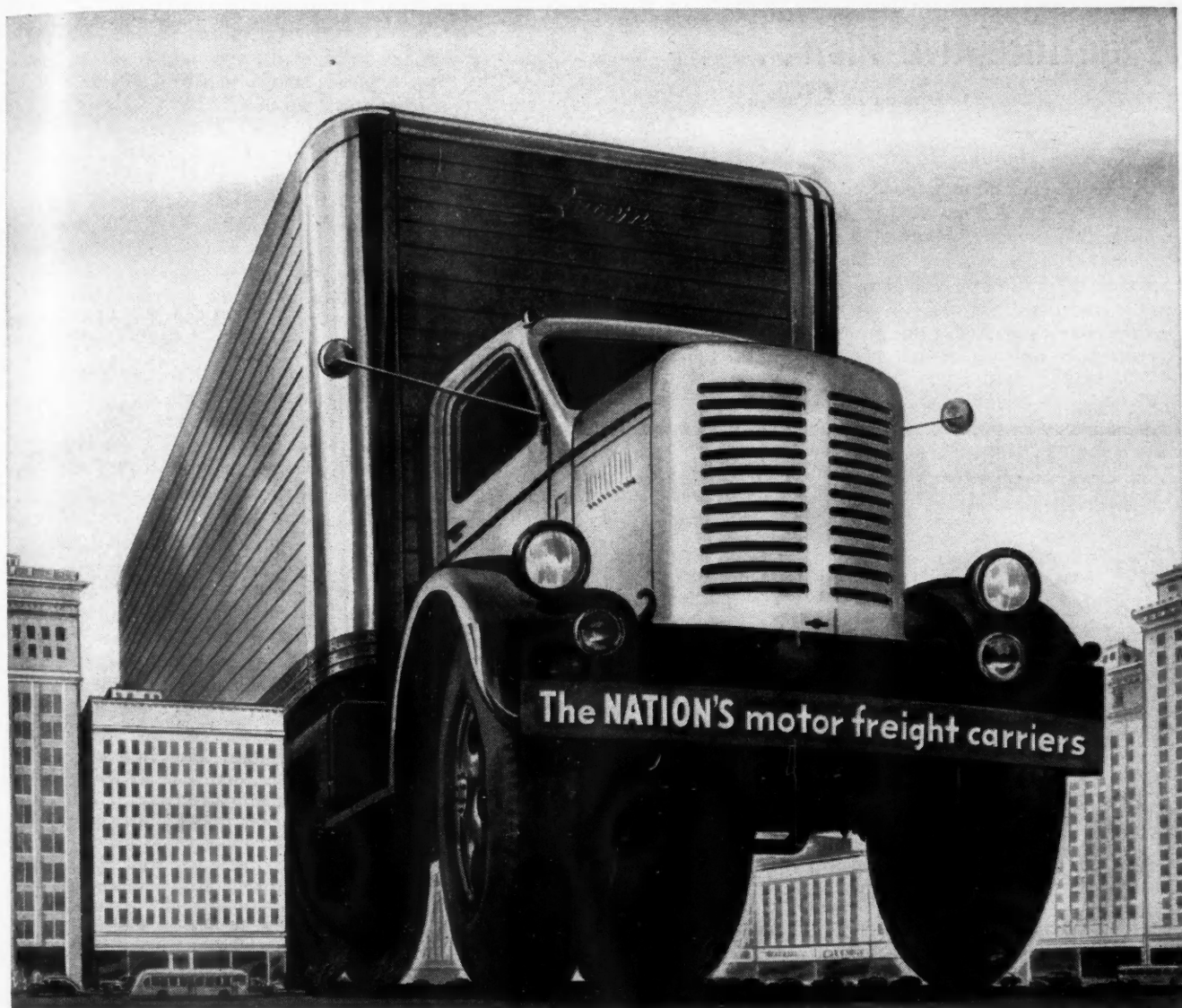
Gyrol fluid drive is standard equipment on all cars with a shift-free Gyromatic transmission available as optional equipment on Coronet models.

Appearance changes are most noticeable in front, with the introduction of a new grille, larger fenders, much larger bumpers and bumper guards.

**END**

*Please Resume Reading Page 74*

Weavin' Willie, our City Driver, says that modern women put up such a false front that a man never knows what he's up against.



## Who says, *Too Big!*

Motor freight is big business—four times as big as ten years ago.

Who says, "Too big?"

Not manufacturers who depend on motor freight service to get goods to distribution points.

Not distributors for whom fast motor freight means door-to-door delivery.

Not the public which depends on motor freight service to keep it supplied with fresh fruits and vegetables all seasons of the year.

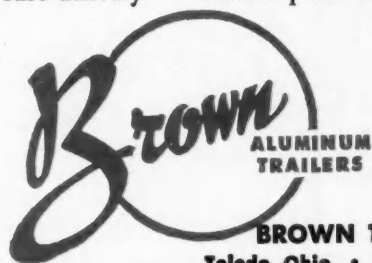
And not the military to whom swift, sure delivery

of parts and finished products is vital to the rearmament race.

Yes—today more than ever, it takes a big motor freight industry—operating big units that can carry big freight loads—to meet the nation's transportation needs.

The motor freight industry is ready—with more vehicles, bigger vehicles and better vehicles to deliver "the goods" anywhere when the call comes.

Brown Trailers, Inc., serves this important industry with bigger and lighter trailers that can carry more freight . . . light weight aluminum trailers built to perform in peace and serve in national defense.



**BROWN TRAILERS, INC.,**

Toledo, Ohio • Spokane, Wash.

# Wage Incentive Plan . . .

Continued from Page 53

## Drivers Handle Hiring

**T**RUCK drivers can, of course, make the most expensive mistakes of any group in the company. Many of their accidents are covered by insurance. Expenses the insurance company refuses to underwrite are assumed by all the drivers as a group. For this reason, every trucker has a personal interest

in the other driver's ability to handle big vehicles safely.

Under the plan, management placed the responsibility for hiring and firing of drivers in the hands of the driver personnel. When the plan was first explained to these men, management put it to them straight from the shoulder, in the following words: "From now on,

you boys are to do all the hiring and firing of drivers. If any of you aren't good enough to stay under this plan, speak up now."

The corps of drivers were experienced men and, with a few exceptions, they not only remained but proved their worth. They reduced the truck accident rate to a minimum for the past two years. Their efforts will be rewarded this year, unless some unforeseen event occurs, by getting an average check of approximately \$1,800 at the end of the bonus year.

To aid the drivers, management set aside an additional 1/4 cent per mile as a credit to the truckers to help pay for minor accidents. Usually, this is enough to defray the cost of smashed side mirrors, dented fenders, and such items.

Accidents are charged against this fund before bonus money is touched. If, for example, a driver's 1/4-cent allowance is exhausted, then the group 1/4-cent is used. If the mistake exceeds this amount, then the individual's bonus is used. If this is insufficient to cover, then the group bonus pays the difference.

Management bends over backwards to keep from charging big driver penalties. They want them to get as big a bonus as possible as a personal incentive to be careful with company vehicles.

## Accidents Reduced 75%

**F**URTHER, to persuade drivers to be careful on the road, the company incorporated in the plan the payment of drivers by the hour rather than by the mile. A speed limit of 40 mph was established for all vehicles, but the drivers are not expected to average this. In fact, Gallagher vehicles averaged only 35 mph on the road last year. The company is interested in SAFE delivery instead of FAST delivery, drivers are told.

As a result of these precautions, during the past two years no one has been seriously hurt by a Gallagher vehicle. The company safety record was fair before the plan was adopted. Since then, accidents have been reduced 75 per cent. This has resulted in the company's paying one of the lowest Personal Liability and Property Damage Insurance premiums in the country.

The employees' interest in the plan can best be illustrated by the fact that, for the first time in Gallagher's trucking history, workers are criticizing management. They are pointing out ways and means management can better operate the company. Why? Because when management falls down on its job, it costs the employees money. They get a smaller bonus at the end of the year.

(TURN TO PAGE 130, PLEASE)

# NASH

## TIRE CARRIERS

**CABLE LIFT TIRE CARRIERS**



**FRAMELESS**  
For Frameless Trailers



**SIDE MOUNT**  
For Frame Trailers



**UNDER FRAME**  
For Trucks

**CABLE LIFT and SLANT BASKET**

*For All Trucks And Trailers*

One single highly specialized source provides you with the proper type of carrier for your vehicle. Light in weight, rugged in construction, Nash Tire Carriers are recommended for either original equipment or replacement.

*Write for bulletin.*

**SLANT BASKET TIRE CARRIERS**

For Tank Trailers



For Frame and Frameless Trailers





**NASH BODY-GARD BUMPERS**  
Custom built from Hi-Tensile Steel. Economically Priced. Prompt Delivery. Choice of Regular Form, Full Form or Wrap Around—5 Face Widths. Write for folder describing our complete bumper service.

# NASH

## BROS.

### COMPANY

PAYNE ST. AND DEWEY AVE.  
EVANSTON, ILLINOIS

*Allied*  
A.P.C.  
VALVES

*American*  
**Brakeblok**  
BRAKE LINING - CLUTCH FACINGS

**BALKAMP**  
PARTS FOR FORD  
CHEVROLET - PONTIAC  
AND ALL POPULAR CARS

**Belden**  
WIRE AND CABLE

**BRIDGEPORT**  
EXHAUST VALVES & ACCESSORIES

**BRIGGS**  
SHOCK ABSORBERS

*BROWN LIPE*  
GEAR RINGS

**CELORON**  
TIMING GEARS

**DETROIT**  
UNIVERSAL JOINTS

**DITTMER**  
TRANSMISSION GEARS

**DUCKWORTH**  
TIMING CHAINS

**ECHLIN**  
IGNITION PARTS

**FEDERAL**  
BALL BEARINGS

*Allied*  
**GRAPHO**  
WATER PUMPS  
PARTS - PACKING

**MARTIN-SENOUR**  
AUTOMOTIVE FINISHES

**MicroTest**  
GEAR - AXLE SHIFTS

**Modac**  
FAN BELTS AND  
RADIATOR HOSE

**Monmouth**  
ENGINE BEARINGS  
CLUTCH PLATES & PARTS  
CHASSIS PARTS

*New Britain*  
HAND TOOLS

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**PRECISION**  
POSITIONING

**PURITAN**  
BRAKE FLUID - CUSHING  
FLUID - SHOCK - ABSORBER  
OIL - GASKET SEALS -  
HYDRAULIC FLUID

**RARITAN**  
ROLLER BEARINGS

*Allied*  
**RAYMOND**  
VALVE SPRINGS

*Soundmaster*  
MUFFLERS

**STANDARD**  
GRAND RETAINERS

**Spicer**  
UNIVERSAL JOINTS

**Thomson**  
THERMOSTATS

**TRICO**  
MOTOR OPERATED  
SAFETY PRODUCTS

**UNITED**  
FUEL PUMP  
HYDRAULIC BRAKE  
SPEEDOMETER AND  
BRAKE CABLES

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**WISCONSIN**  
PISTONS - SLEEVES

**ZOLLNER**  
PISTON EQUIPMENT

# Quality Parts— Quickly Available

IN A NUTSHELL, THAT'S THE BIG REASON WHY



*Your NAPA Jobber  
is a Good Man to Know!*

Your NAPA Jobber is more than just another parts jobber. He is part of the nation's largest independent parts organization. And, along with the parts he sells, your NAPA Jobber offers certain undeniable and exclusive advantages to you.

**For example:** NAPA Warehouse Service, backing up your NAPA Jobber's own broad stocks. This vital service puts master stocks of quality parts "right in your own front yard"—no farther away than the nearby NAPA Warehouse. Emergency orders . . . rarely needed parts . . . your NAPA Jobber can get them for you overnight or quicker.

**For example:** NAPA's "Assurance of Quality" Seal, your assurance of genuine quality in every parts purchase. And this assurance includes a broad range of parts

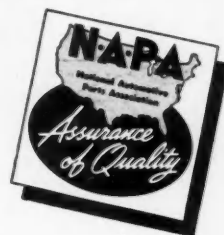
covering the vast majority of your requirements—for cars, trucks and buses of all makes.

**For example:** The lines your NAPA Jobber stocks are lines you *know*. Many of them are widely used as original equipment. In every case, they are recognized by automotive engineers as meeting the highest standards of quality, performance and service.

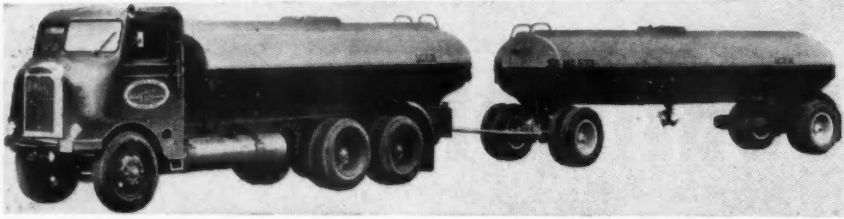
These are but a few of the real and worthwhile advantages that come to you when you do business with your NAPA Jobber. There are many more. And it will pay you to find out about them. Let your NAPA Jobber know the parts requirements of your fleet, if you already haven't done so. Let him prove to you the truth of the statement: "Your NAPA Jobber is a Good Man to Know!"

NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT 1, MICHIGAN

**N.A.P.A.** *is the largest  
Independent Parts Organization in the Industry!*



## Freightliner COE Tanker



This new 8,000-gallon capacity Freightliner COE diesel powered petroleum transport is the first of seven similar units being delivered to Howard R. Williams, Inc., Portland, Ore. This is the first time the COE design has been applied to Freightliner bulk-petroleum carriers. It has a Buda 6-DAS-844, diesel engine of 280 HP, GVW 14,000, has a 3650 gal. tank, and will carry a 4400 gal. trailer. The combined truck and trailer GCW is 25,320 lbs.



Heavy-duty steel case. Dust-proof. Weather-tite. Side or bottom mounting. Locking hasp.

**You Know**  
BOLSER OIL FLARES  
**NOW SEE**  
GENUINE  
**BOLSER**  
REFLECTOR  
FLARES

The Bolser Reflector Flare has everything . . . Exclusive locking device keeps lens at right angle for maximum reflection and greatest warning distance . . . Plastic lens hermetically sealed into permanent position . . . Main chassis upright holds metal flag staff . . . Rust-resistant, electro-plated, heavy zinc finish.

Available 3 flares with or without flags in carrying case—or single units only. See your jobber.

THE BOLSER CORPORATION  
Cedar Falls, Iowa



EASY AS

1, 2, 3

TO SET UP  
OR  
TAKE DOWN

MEETS I.C.C.  
AND STATE  
REGULATIONS

FOR Safety's SAKE

## Wage Incentive . . .

Continued from Page 128

### Management's Benefits

MANAGEMENT'S benefits from the incentive plan also have been great. These are summarized by Mr. Cannon as follows:

1. Employee morale has been boosted 100 per cent since the plan was adopted.

2. Employees perform their jobs at top efficiency, aiming at lowering operating costs and increasing company business. Everyone wants to see more cargo on the docks. Drivers that pick up merchandise, try to secure more freight from the customers. Every employee that meets the public is sales-minded.

3. Employee turnover has been cut to an absolute minimum. Not one case of an employee quitting to accept another job has been recorded in the two years that the plan has been in effect. The value of this is apparent now that the leading economists in the country predict that a tight labor market will go hand in hand with the expansion of the national defense program.

4. Employees make more money. Because of this, labor problems virtually have vanished.

5. Management has increased its net earning, in spite of the fact that 25 per cent of its monthly net before taxes is set aside in the bonus fund. Last year, for example, the average net income for trucking companies throughout America was 7 per cent of their gross. In the case of the Gallagher Transfer Co., the net income last year, before taxes were deducted, was 28 per cent of the gross. This is the harvest reaped when management has the complete co-operation of its employees.

Mr. Cannon cautions, however, that an incentive plan will not run by itself. It takes an alert and willing management to make it succeed. If mistakes are not spotted, the company has to pay for them twice—once at the source and, again, at the bonus. But the rewards are high for the trucking firm that will take the trouble to make an incentive plan function properly. It will enjoy labor harmony, have fewer claims to pay, and see net profits rise.

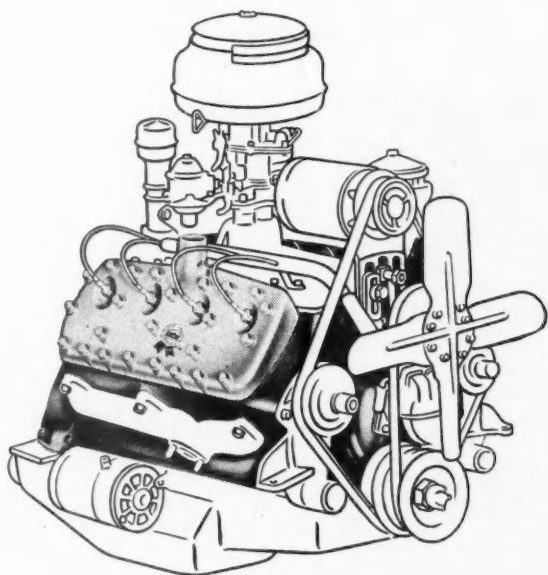
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Please Resume Reading Page 54

### Trucker's Hobby

SOME PEOPLE COLLECT STAMPS,  
SOME PEOPLE COLLECT NAMES  
I'M AN OVER THE ROAD DRIVER,  
MY HOBBY IS DAMES.

# Get GUARANTEED PERFORMANCE for high-mileage Fords



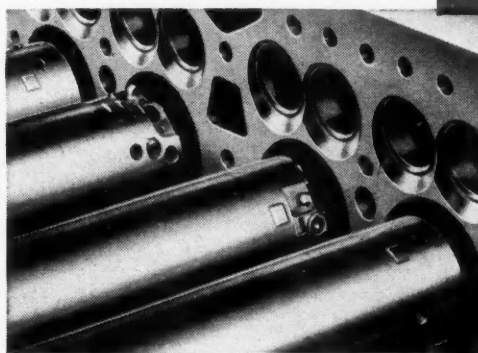
When it's time to re-power high mileage Fords, be sure of the best—in performance, power and long lasting economy—with Authorized Reconditioned Ford Engines. Here's why:

- ① Thoroughly reconditioned to Ford's famed hi-precision standards by an Authorized Reconditioner.
- ② Genuine Ford Parts used throughout.
- ③ Rigidly block-tested and inspected.
- ④ Backed by the Authorized Reconditioner's guarantee for 4,000 miles or 90 days, whichever occurs first.

Reliable engine performance can pay off for your fleet. And the guarantee that goes with Authorized Reconditioned Ford Engines and Engine Accessories is your assurance of reliability. Ask your Ford Dealer or Independent Garage for the engine with the Reconditioner's emblem.

with  
**Authorized**

Reconditioned Ford Engines  
and Engine Accessories



*Precision re-boring of cylinders to exact factory standards is typical of the workmanship that assures the high quality of Authorized Reconditioned Ford Engines and Engine Accessories.*



● Wherever you buy reconditioned Ford Engines, be sure to look for the Authorized Reconditioner's emblem—your proof of quality and value.

**FORD Division of FORD MOTOR COMPANY**

# Knudson Asks Uniform Codes

Continued from page 51

jectionable state restrictions on the movement of commercial trucks are size and weight limitations on the vehicles or their loads, burdensome license and tax requirements and certain methods of administration."

## Barriers Worse in Emergency

**I**N TIME of national emergency, state restrictions on highway transport

have a more serious effect upon the welfare of the nation than at any other time. In such an emergency, nearly all traffic carried on the highways is either directly related to the national effort or is necessary for the maintenance of essential civilian economy.

It is especially desirable, therefore, that such traffic be allowed to move as freely and as expeditiously as possible.

State restrictions operate with greater severity as barriers in times of national emergency than in normal circumstances. There are several reasons for this.

In the first place, heavier loading of vehicles is required because of the need to utilize to the fullest available transport facilities. This means that vehicles more frequently exceed weight and size limitations and are thus exposed to greater delays at state borders.

In the second place, in such times the normal pattern of distributing goods and materials is altered in such a manner as to accentuate the effect of state restrictions.

The sites of plants, army camps, quartermaster depots, air bases and numerous other installations are determined on the basis of strategic rather than economic considerations and are often located in states where traffic formerly had been relatively light, and where weight and size limitations had been low. In such circumstances, state limitations become an effective bar to interstate transport.

## Problems in Case of Attack

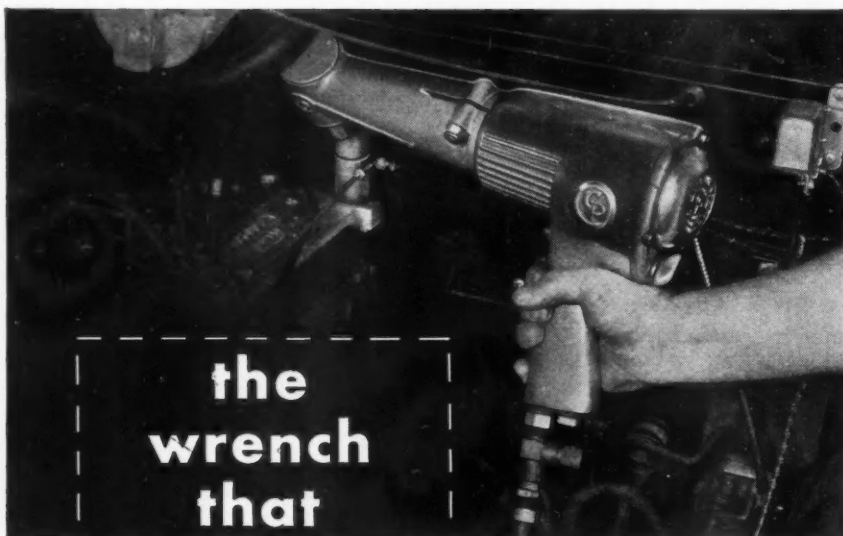
**T**HE transportation problems which we would face in the event of another war would be even more staggering than any with which we have heretofore been confronted. We might be faced with fighting and sabotage in our own country. We might experience the dislocations of crippling aerial attacks.

Highway transport in such circumstances would be called upon, in addition to performing all of the services performed in World War II, to play a major role in civilian defense, to transport immense quantities of food and medical supplies, and to take over land transportation service in areas where other facilities may be crippled or embargoed. Ultimate success in such circumstances might well depend upon the way in which highway transport could and would meet this challenge.

The present challenge is only lesser by degree. It is important for us to gear for such emergencies, to make sure that our highway transportation system is equipped to perform the responsibilities placed upon it and, for these reasons, to recanvass existing laws and regulations to determine whether any are artificial or unduly restrictive.

The interstate trade barrier problem could well be dealt with again through the adoption by the states of a uniform regulatory code and a uniform specification for vehicles; by adoption by the states of full reciprocity between the states; or by Federal legislation establishing specifications with maximum axle loading for motor vehicles en-

(TURN TO PAGE 134, PLEASE)



**the  
wrench  
that  
reaches  
any bolt**



**CP Pneu-draulic Pump powering push-and-pull ram** — Here's an easy way to apply a giant's strength. 15-lb Pneu-draulic Pump will power any hydraulic equipment now operated by hand, by merely attaching pump to a compressed air line. Throttle can be controlled by knee, foot, elbow or hand.

Thanks to its detachable angle head, this CP-750 Air Impact Wrench is making easy work of running a cap screw in a mighty awkward spot.

And controllable power assures running on nuts and cap screws to proper tightness.

In the complete line of CP Controllable Air Impact Wrenches there's a size suited to any nut or bolt on car or truck. Capacities: CP-730 to 7/16" bolt size; CP-750 to 5/8" bolt size; CP-770 to 1" bolt size —all are equipped with detachable angle heads.

For still heavier jobs, the CP-365, with a capacity to 1 1/4" bolt size, is available in straight and angle head models.

*Write for full information.*



**AUTOMOTIVE SERVICE EQUIPMENT • FENDER IRONS • ELECTRIC TOOLS  
AIR IMPACT WRENCHES • AIR COMPRESSORS • PNEU-DRAULIC PUMPS**

## SELF-CONTROL STARTS HERE



AND TO RESTORE  
ENGINE PERFORMANCE

## OIL-CONTROL STARTS HERE

To stop oil-pumping, replace worn main  
and connecting rod bearings

Shot full of holes is the old theory that new piston rings—alone—can correct oil-pumping.

Worn main, connecting rod and camshaft bearings are a major cause of oil-pumping. When bearings are worn, they shorten the life and decrease the efficiency of the best of piston rings. Give the new rings a chance—check for worn engine bearings on every

engine reconditioning job.

Replace worn bearings in sets with genuine Federal-Mogul bearings, *engineered* for the job of oil control!

**FEDERAL-MOGUL SERVICE**

(Division of Federal-Mogul Corporation)  
DETROIT 13, MICHIGAN



control oil-pumping where it starts—REPLACE WITH

# FEDERAL-MOGUL



## BEARINGS

## Knudson Asks . . .

Continued from Page 132

gaged in interstate commerce.

Of these three possible remedies, the first two are undoubtedly the preferable ones, because they leave to the states the exercising of state rights in the control of highway transportation.

### Cites AASHO Code

**F**ORTUNATELY, there is at hand a uniform regulatory code consisting of

the recommendations of your Association (AASHO) providing for standards of vehicle length and weight distribution that are considered to be in full compliance with the physical capabilities and safety requirements of our highways.

The code recommends an overall length for tractor semi-trailer combinations of 50 ft. In 23 of our states, concentrated mainly in the Midwest and East, the length limitation on such a unit is 45 ft.

The code recommends an overall length for a truck full-trailer combina-

tion of 60 ft. There are 30 states that limit this type of unit to a length of 50 ft or less, which precludes it for practical operations. There are four states in which such a unit is expressly prohibited.

Both of these units, the 50 ft tractor semi-trailer and the 60 ft truck full-trailer, are in wide usage in the 11 Western states.

The code's vehicle weight recommendations allow gross loads of approximately 65,000 lb on a five-axle tractor semi-trailer. This gross weight on such a vehicle, if I am correctly informed, has been found to be well within the recommended load limits of our highway system. In spite of this, however, such a vehicle would not be permitted in 23 of our states. In three of these, the permitted gross weight is arbitrarily restricted to loads as low as 42,000 lb and 48,000 lb, regardless of the type of unit that may be employed.

The code's recommendations permit gross loads ranging as high as 72,000 lb on a truck full-trailer combination. Here again, this load would be carried in such a way as to be in full compliance with accepted highway capabilities. However, in only 12 of our states would such an operation be permitted. In the remaining 36 states the existing length limitations or gross weight restrictions are such that this vehicle is impractical to operate, or may not be operated at all.

### Higher Loads Hauled in West

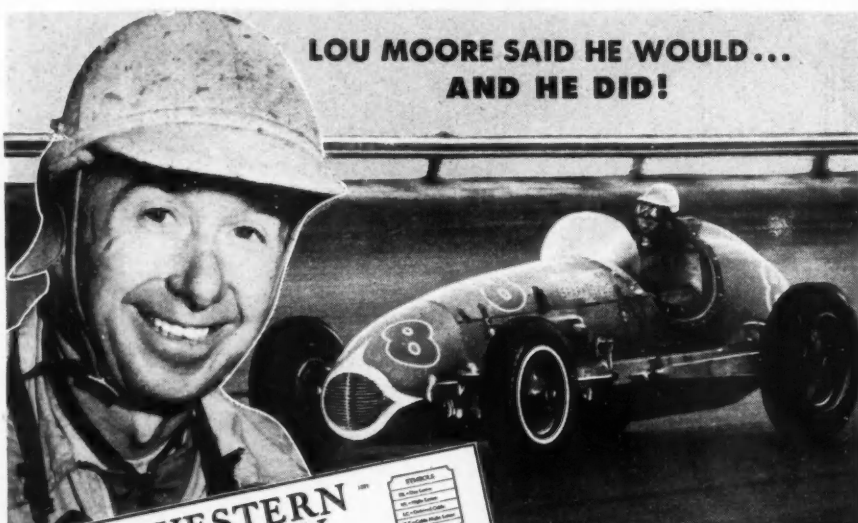
**A** BETTER understanding of what a more rational approach to size and weight regulation means to our economy may be found through comparison of the operations of motor carriers in the Western states with those in other areas of the country. The 11 Western states have size and weight laws that are in basic conformance with those limits prescribed by the code of the AASHO.

Reports submitted to the Interstate Commerce Commission by Class I Common Carriers of General Freight show that carriers in the Western states operate with an average pay load of 11.5 tons. This compares with an average of 9.3 tons for carriers in the remaining areas of the country. Thus, the Western carriers have loads averaging 23 per cent higher than carriers in other areas. This is a significant difference when we think in terms of the equipment and manpower utilized in performing transportation services.

If the other areas of the country were able to utilize the larger equipment with the recommended weight distribution, they would effect great savings in terms of vehicles and personnel. If

(TURN TO PAGE 136, PLEASE)

**LOU MOORE SAID HE WOULD...  
AND HE DID!**



**HENRY BANKS  
TAKES  
AAA CHAMPIONSHIP  
USING  
BURD  
Graf-Flox PISTON RINGS  
ALL THE WAY!**

**WESTERN UNION**


WUG124 DL PB-ATLANTA GA DEC 12 1230P 1950

BURD PISTON RING CO.  
ATTN F M WHITE

WON NATIONAL THREE A CHAMPIONSHIP FOR 1950 USING  
YOUR PISTON RINGS EXCLUSIVELY IN MY 270 CUBIC INCH  
OFFENHAUSER. I WISH TO COMPLIMENT YOU ON A FINE  
PRODUCT. REGARDS  
HENRY BANKS

It was a *right* combination from the word go! Henry Banks, Driver . . . in a Lou Moore built car that finished sixth at Indianapolis . . . equipped with Burd Graf-Flox Piston Rings. And it paid off with racing's most coveted honor—the National AAA Championship! Like a true champion Henry Banks completed his lead-footed tour of the racing circuit at the Darlington, South Carolina Classic December 10th, to decisively outpoint even his closest contenders for the AAA trophy. Burd Piston Rings of standard stock design and materials powered Banks' car to victory. They'll win for you too, with profitable performance!

**BURD PISTON RING CO. • ROCKFORD, ILL.**



GET THEM  
FROM YOUR JOBBER

INSTALL THEM  
WITH CONFIDENCE

CASH IN ON THEIR  
WINNING PERFORMANCE

\* Peoria Cartage Co. reports...

**78,982** miles of  
wear on  
**COOPER ALL-DUTY  
TRUCK TIRES** . . . .  
with many more miles expected

If your present tires aren't delivering satisfactory service, if tire costs are out of line — then profit from the experience of Peoria Cartage and change to cooler-running Coopers.

Here are the facts: A set of 10:00-20 Cooper All-Dutys was placed on the drive wheels of a tractor unit used on the toughest haul this company makes. 78,982 original miles had been delivered at the time J. J. Buck reported results — and the tires were still running, still delivering lower-cost service.

More likely than not . . . Cooper truck-bus tires can reduce operating costs for you — whether the best mileage obtained from your present tires is higher or lower than that recorded by Peoria Cartage. Your Cooper dealer has some very interesting reasons why — and they're yours to evaluate, no obligation of course.



**Distributed Stress Constructed**

. . . an exclusive Cooper truck tire feature that protects against localized flexing and high friction heat

**Coopers run cooler . . . run longer**

\* Report by J. J. Buck, Gen. Mgr., Peoria Cartage Co., Peoria, Illinois. Copies available upon request.

**Cooper** **TIRE & RUBBER CO.**  
Factories at Findlay, Ohio

Tires • Tubes  
Batteries • Accessories  
Repair Materials

## Knudson Asks . . .

Continued from Page 134

these carriers operated with the same average load as the carriers in the Western states, they would be able to perform their same service with more than 20 per cent fewer vehicles. Conversely, they would be able to carry more than 20 per cent additional tonnage without adding to their fleet.

The savings in manpower would be equally important. Complete statistics on this are not available but, inasmuch as the vehicle-driver relationship is fairly constant, it is conceivable that higher average loads would result in greater tonnage transported per employee.

In terms of cubic capacity, the comparisons between vehicles permitted under the code's recommendations and those operating in many states today show marked differences. The existence of a 45-ft overall length limitation entails the operation of 35-ft semi-trailers

and resultant capacities of approximately 1800 cu ft. The truck full-trailer combinations permitted under the code would have cubic capacities ranging as high as 2700 cu ft, or 50 per cent greater than that attainable with a 45-ft length limitation.

It is important that steps be taken promptly to deal with these problems of interstate trade barriers. If the states do not, in this emergency period, cooperate effectively an objective reappraisal looking forward to the elimination of all unjustifiable barriers, their failure to do so will be an invitation to elements of the Federal government to take the lead in bringing about uniform standards.

Your Association has done much toward the elimination of unwarranted restrictive highway trade barriers. Certain of the states have joined hands in sponsoring a series of road tests, the purpose of which is to observe and measure the effects of the frequent passages of vehicles of known axle loading at known speeds over a pavement of known composition and dimensions, constructed on foundations of known character.

The first of these tests on a concrete highway south of La Plata, Md., (Maryland Road Test—Ed.) is completed. Others, over other types of highway structure, are, I understand, in prospect.

I hope that these technical and objective approaches to obtaining new facts about highway loads, in relation to the other fundamental factors of highway construction and maintenance, will provide data of value in achieving a more desirable result. I sincerely trust that during this period of our defense production effort, your endeavors to provide a realistic solution to this vexatious problem will go forward with vigor.

I pledge you my wholehearted support. The national interest requires that we do not fail in our efforts.

END

Please Resume Reading Page 52

# Anything can happen WHEN MOTOR MOUNTS GO BAD

## CLUTCH CHATTER



Soft deteriorated rubber or broken motor mounts prevent proper clutch linkage resulting in clutch chatter.

## ENGINE VIBRATION



Motor mounts are designed to absorb engine vibration and road shock. When mountings "go bad" the vibration is transmitted to the body and chassis.

## DIFFICULT GEAR SHIFTING



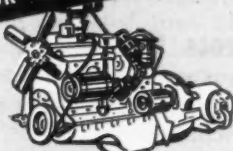
Difficult gear shifting can be a real headache to the truck driver. Faulty mounts frequently cause this trouble.

## STICKING GAS PEDAL



Sticking gas pedal occurs when the motor is out of alignment. Here again, new Armor-Flex mounts is the answer.

## MOTOR MISALIGNMENT



Mountings hold the engine in its proper position to resist torque reaction. Broken mounts will throw the motor out of line.

## Play it safe



Don't take any chances. When a truck with any of the above symptoms comes in for repairs, be sure to check the motor mounts. Install new live rubber Armor-Flex mounts wherever necessary.

**Doan MANUFACTURING CORP.**

1761 LONDON ROAD • CLEVELAND 12, OHIO

PACKAGED AUTOMOTIVE REPLACEMENT PARTS



# FRUEHAUF TRAILERS

**Organization!"** reports D. H. RATNER,  
HAYES FREIGHT LINES



## "FRUEHAUF FACTORY BRANCHES — A BIG FACTOR IN OUR OPERATION!" —says Syd Kramer, Fleet Sup't.



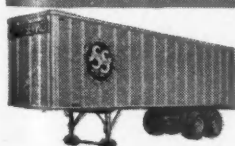
SYD KRAMER  
Fleet Sup't.

"We maintain 25 shops for servicing our equipment. Because of the convenient and completely stocked Branches located in our territory, we can minimize on our parts supply. Fruehauf Branches offer our operation added protection in the event of road failures. We've found them equipped to get our Trailers speedily back on the road, saving us costly lay-ups."

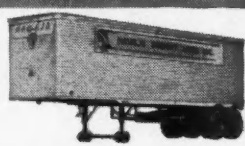


"That power gear sure takes the punishment out of lifting loads these sub-zero mornings," says Switcher Gordon Dyess. Fruehauf two-speed Supports speed lowering . . . ease lifting.

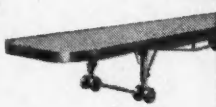
WRITE FOR  
FULL FACTS  
TODAY!



ALUMINUM (Corrugated Type)



STAINLESS STEEL



PLATFORMS

Fruehauf Trailer Co.  
Detroit 32, Michigan

Please send information on \_\_\_\_\_  
(Indicate type of unit)

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# Labatt's Maintenance Program

Continued from Page 74

tices, we know that our cost figure is pretty much in line with any we heard of for our industry and lower than a great many we have seen for comparable service. However, lest some of our American friends forget, many of our basic costs, here in Canada, are considerably greater than identical or similar items in the States. To cite a

few examples, the cost of gasoline averages 31.3 cents per gallon. (This includes our fleet discount.) Lubricating oil costs \$1.04; spark plugs 45 cents; 6-volt, 17-plate batteries, \$24.85; brake linings for front wheel, \$36.88 per set; for rear wheel, \$36.88; ignition points, \$1.22; Fram oil filter cartridges, \$2.34; rebuilt springs, \$8.18 each.

There are many reasons why despite these figures we are able to keep within our budget. First, we have a standardized fleet; all one make, which reduces maintenance time and leads to economy in the stockroom. Our inspection system is another. It consists of an "A" inspection every 5000 miles and a "B" inspection, which includes another "A" at 20,000.

We also use a driver report or repair instruction sheet to enlist the cooperation of the vehicle operators. The mechanics, many of them with long service records with our company, take personal pride in the quality and workmanship of each repair task.

We have found this attitude highly commendable. If a truck should break down on a route after a repair in the garage, the mechanics do not like it. They regard this as a "black eye" or a mark against their efficiency. As a result we have an amazingly low number of road calls. They look vehicles over carefully and often do more than the particular job calls for.

Our "A" inspection every 5000 miles is a composite engine and chassis inspection developed from recommendations of the manufacturer. There are 28 points of inspection on the engine which include all vital engine components, electrical system, running gear, etc. The chassis inspection calls for 14 check points including the operation of the spare tire carrier and dolly wheels. A check-off sheet is provided to aid the mechanic, which carries his signature after the inspection is completed.

In addition there is an "A" inspection of body parts done at the same time. The body shop man checks all door hinges, catches, window regulators, etc. A report of this inspection is also made, noting all replacements and body damage.

Our "B" inspection combines the "A" and includes brakes, wheel bearings, drive shafts, universals, pinion adjustments, grease leaks, etc. The fuel pump is overhauled, carburetor and radiator cleaned. General lubrication and small safety checks are done between general inspections. Drivers check water level in the battery twice each week as well as periodic checks of windshield wipers, horns, etc.

In a nightly report, the driver also notes any malfunction of the truck, indicating on his report form exactly how the truck acted. When under repair, the various forms are inserted into a cellophane holder and hung on the front of the truck, indicating that work is in progress.

The master control of operation and inspection is in the form of two visual control boards which operate under the (TURN TO PAGE 142, PLEASE)

TO **SWING** THOSE DOORS,  
LARGE or SMALL,  
USE **E** HINGES on them ALL!

REFRIGERATOR  
PANEL BODY HINGES

NO. 5828

NO. 5829

NO. 5832

NO. 5864

NO. 5833

FOR ROUND CORNER  
BODIES

NO. 5841

NO. 5866

NO. 5814

NO. 5813

Eberhard offers a complete line of truck body hinges, designed and made to withstand the wear and tear of abnormal usage. Write for the Catalog. Refer to it for all your automotive hardware needs.

**EBERHARD** *Long Run*  
TRUCK BODY FITTINGS **E**

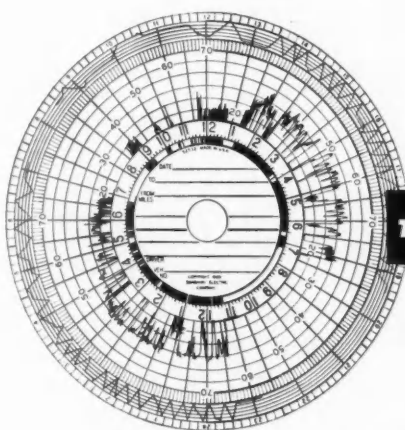
EBERHARD MANUFACTURING CO.  
Division of the Eastern Malleable Iron Co. EVARTS AVENUE CLEVELAND, OHIO

# TACHOGRAPH

THE TIME-TESTED RECORDING SPEEDOMETER



RED LIGHT  
WARNING WHEN  
SET SPEED IS  
EXCEEDED



## THIS CHART AUTOMATICALLY RECORDS...

- WHEN ENGINE STARTED
- HOW LONG ENGINE IDLED
- WHEN VEHICLE WAS IN MOTION
- HOW FAST IT TRAVELED
- WHEN VEHICLE STOPPED
- DISTANCE TRAVELED BETWEEN STOPS

DISTRIBUTED BY  
**Wagner**  
Electric Corporation

(Branches in Principal Cities and in Canada)

## Wagner Electric Corporation

6476 PLYMOUTH AVE., ST. LOUIS 14, MO.

Please send a copy of Bulletin SU-3B.

Name and Position \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

We operate \_\_\_\_\_ Vehicles

(NUMBER)

831-3

**"Gives us a true record of miles driven, hours on duty, delay time, and help in computing pay rolls and hours of service."**

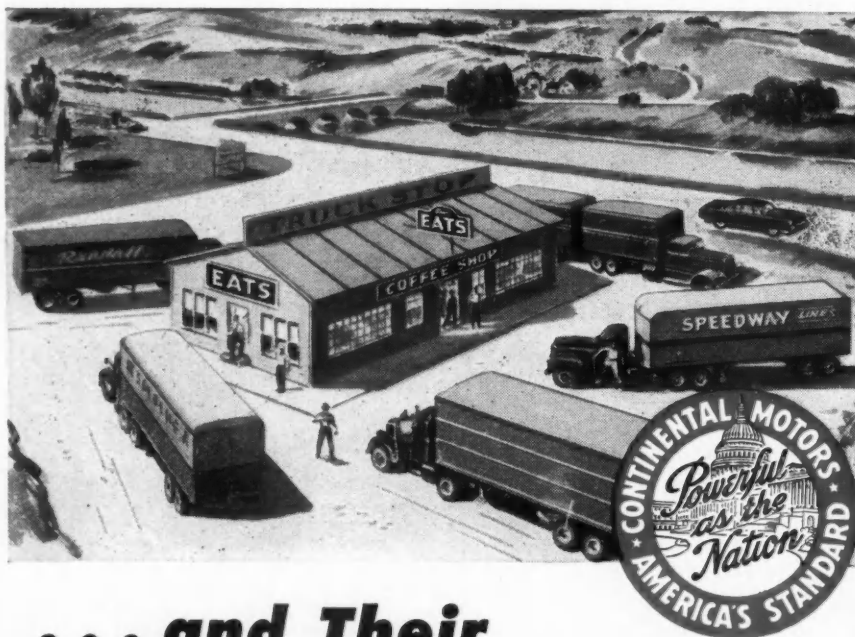
\* DOHRN TRANSFER COMPANY

The excerpt above is typical of the many favorable expressions made by hundreds of large fleet operators who have installed these time-tested instruments.

Today, to make over-the-road trucking profitable, drivers and fleet owners must have real confidence in each other. Operations must be on a basis of mutual understanding so that payloads move smoothly and a lasting, profitable relationship results.

Drivers have found that Tachographs are their "buddies" because they give a charted record of the entire trip and prove their good driving habits. Owners find that Tachograph equipped vehicles have fewer accidents . . . spend less time in the repair shop . . . and earn lower insurance rates. If you have not installed Tachographs on your fleet write for Bulletin SU-3B and get complete information.

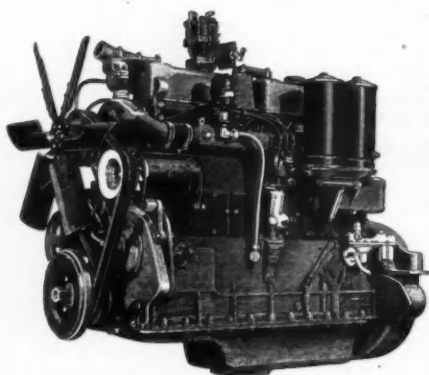
## These Boys "Know Their Groceries"



## ... and Their ENGINES, Too

If you want hearty food and plenty of it, stop where these "Big Boys" stop. That's almost an axiom of the road. For the relative merit of the various restaurants along the route is a subject in which their drivers are naturally well versed.

Another such subject is their vehicles, of course. Listen in as drivers talk shop, and you're sure to hear strong boosts for Continental Red Seal power. They come from men who know at first hand what they're talking about.



**MODEL R-400 HEAVY-DUTY ENGINE**  
(transportation) Six-cylinder—overhead valve type—for trucks, buses and tractors. Delivers 110 to 160 net horsepower.

More and more heavy-duty haulers with these latest Red Seal engines are taking their place on the highways, and proving their right to that place on the solid basis of performance. They are piling up impressive records for day-after-day dependability, fast over-the-road schedules, and fuel and upkeep economy that means low ton-mile cost.

**Continental Motors Corporation**  
MUSKEGON, MICHIGAN

## Labatt PM Program

Continued from Page 140

Product-trol system. To the left side of the board and attached to it are a number of index cards. The top edge of the cards are visible and have a number corresponding to each truck. These cards are actually a case history of every truck in the fleet. Every service check, inspection, major repair, accident or body repair, and routine maintenance operation is recorded on this card.

The function of the board, however, is even more valuable in telling us what work or inspection is due. In this way, we can know when to "hold" a truck. Running lengthwise across the board are rows of small holes for holding marking pegs. At every fifth hole a painted line indicates 500 miles of road operation. At every ten painted lines there is a string which indicates the 5000 mile mark. Each truck's mileage is taken and a movable string extended horizontally across the board to the corresponding peg hole. We move the strings once each week. Additional information is obtained from the board by indicating trucks, cabs, trailers, full rigs, or passenger cars by color, shape, or size of the pegs. Storage for unused pegs is below the board in divided boxes.

Among other economy rules in our shop is the practice of using only one brand of gasoline and line of greases. Any complaint against the stock may be discussed with one petroleum dealer instead of many separate ones. We also take pride in the cleanliness of our shop and watch carefully for salvageable parts. We rebuild our own generators, fuel pumps, carburetors and motors with the exception of crankshaft regrinding, all in our own shop. Waste oil is not reclaimed but used in the fleet yards and driveways for a dust repellent.

We believe that our P. M. system allows us to keep on top of all work as well as keeping our fleet in top condition. We believe that the effectiveness and economy of our program are due to good planning, good spirit, and consistency.

END

Please Resume Reading Page 76

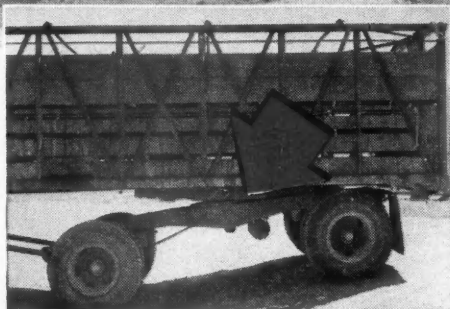
*The Freight Checker's little chip off the old block had cut loose with a rather strong word. His father called him over and said, "Here's a quarter. Now don't let me hear you say a word like that again, ever."*

*Some few days later the kid sought out his father. "Dad," he said breathlessly, "I have a new word and it's a corker, but it'll cost you a dollar to hear this one!"*

**First class travel  
for 32,000 lbs.  
of steak**

# VIA HOOBLER UNDERCARRIAGE

*Hoobler-equipped unit owned by  
E. A. Tolman, Twin Falls, Idaho.  
Forty feet long, it can turn in  
space intended for 25 and  
30 foot trucks.*



*• Note how Hoobler Undercarriage takes the bumps  
out of rough spots. Loads ride level. Practically all  
road shocks are absorbed before they reach the cargo.*



*• 32 head of cattle, weighing 32,000 lbs., ride easy,  
safe, with less weight loss, in this Hoobler-equipped  
rig.*

## • SAFER, EASIER RIDES • LOWER HAULING COSTS • LESS CARGO DEPRECIATION

**C**ATTLE men will tell you that getting cattle to market in the best possible condition, without bruises or hide damage, means top prices. Bruised animals bring much less—may even be unacceptable. And getting cattle to market quickly means less loss of weight—higher price per animal. On all counts, the Hoobler-equipped rig pictured here is helping its owner make extra money.

Because the Hoobler Undercarriage provides flexible, multiple support, practically all road bumps are absorbed. There's minimum load shifting. Cattle—or any other loads—ride easier, are protected better.

There are more advantages. The Hoobler Undercarriage permits easy backing up for loading or unloading even in small space. The undercarriage allows the trailer to snake around tight turns with practically no tire scuffing. There's no "weaving" on straightaways. "Outrigger" action provides greater stability on curves. And Hoobler 9-ft. axle spacing generally permits greater payloads.

The Hoobler Undercarriage is simple in design and construction, quickly inspected, easily serviced. It's used on high sides, tankers, vans and flat tops (28 ft. in length and over). Find out how it can help you make savings on every haul. For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

# UNION METAL

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

*Builder of The Hoobler Undercarriage*

# Court Decisions on Highway "Rut"

**T**HERE ARE FOUR CONDITIONS or situations on highway pavements and shoulders where, and in which, motor vehicle drivers are unusually prone to have accidents, with resulting liability for damages to property, or for injury or death to an occupant of the particular vehicle or to a third person.

Grouping all of these conditions on highway shoulders under the term "ruts," for convenience in discussion, the courts may be said to consider that liability of the accident-causing driver will be imposed, if imposed at all, because of one of these acts on his part—all of which will be familiar, and perhaps sadly so, to experienced truck owners and drivers:

(a) The driver got the vehicle into the rut through negligence, in the first place; (b) he stayed in the rut too long before attempting to get out; (c) the manner in which he handled his vehicle while driving in the rut was incompetent or reckless; and (d) the way he performed in attempting to get out of the rut was either inefficient or negligent, or both.

Considering these acts of possible negligence and inefficiency in the order named, the legal rule first to be stated is that if an accident occurs because a driver negligently permits his vehicle to get into a rut, or other unevenness, or onto a covering of sand or gravel on the highway shoulder, he will be saddled with liability for damages, if it appear that there was sufficient space for him to avoid getting into the position of danger by driving carefully.

For instance, a vehicle went around a curve in an Illinois road at such high speed that the right wheels plowed into the sandy shoulder adjacent to the pavement, the car skidded and then turned over, injuring a guest-rider. The driver was found guilty of negligence in the victim's suit for damages, because he could have avoided getting onto the soft shoulder by driving more slowly.

Once having gotten into a rut, or other unevenness or gravelled space running parallel with the concrete's edge, the driver may incur liability for the results of an accident if he neglects to get out of his predicament and back onto the pavement within a reasonable time, and as soon as conditions reasonably permit his doing so.

To illustrate this point, a driver proceeded partly on a black-top roadway and partly on the shoulder for 45 ft.

**By Renzo Dee Bowers**

Then, the right front wheel struck a hummock of snow and ice 2 ft off the black-top. The car suddenly swung around, crossed the highway and a shallow ditch beyond it, and struck a

tree. The driver was killed and a passenger riding with him was injured. The passenger sued the driver's estate on a charge of negligent driving. The court approved his claim, ruling that the driver was at fault for not applying the brakes sooner or attempting to turn the vehicle back onto the black-



IT'S THE ENGINE...  
NOT THE OIL...

Miracle Power doesn't clean up after  
it's used and discarded, it cleans up as it goes.  
It's all synthetic—pure and synthetic  
graphite completely suspended in oil.

GRAPHITE FOR  
EQUIPMENT

SEEK METAL  
SEALERS

# Accidents"

top, and was, therefore, negligent in the management and control of his vehicle.

After getting into a rut along the pavement, or onto a tricky shoulder, a driver must use due care in his manner of driving until he can get back onto the pavement. He may be mulcted in compensatory damages, at the discre-

tion of a jury, in favor of anyone injured in person or property in an accident caused by the driver's neglect or failure to comply with this rule of law. Controverting proof by him, that his driving while in the rut was with due and reasonable care, or that he acted in the face of a sudden emergency, will, of course, absolve him of liability.

As an example, a Michigan owner-driver of a truck was proceeding through rain, and at reasonable speed, down a long, unfamiliar hill. About halfway down, at a curve, his right wheels got off on a shoulder of muddy gravel and

started to skid. Before he could regain full control of the vehicle, it plunged back onto the pavement and over the center line, hitting a car coming up the hill on its own proper side. The truck owner was summoned to court in a suit for damages on the ground that he had negligently driven on the wrong side of the highway.

The court freed him from the charge, upon a ruling of which the following is the substance: When a motor vehicle unexpectedly skids upon a slippery road through no fault of the driver, who has had no reason to anticipate the dangerous condition at the particular place, he may be excused, because of the emergency, for failure to comply with the statutory requirements that he keep on the right side of the road.

The most common cause of accidents in these categories is found in the methods employed by drivers in attempting to get out of ruts. The fault may be that the driver failed to keep a sufficient lookout for other vehicles that might be near before taking drastic action to get out of the rut. It may be that he was going at excessive speed under the difficult circumstances and, for that reason was unable to control the vehicle. Or liability may be saddled upon him for a damaging accident because he abruptly and forcibly turned the vehicle in another direction without applying the brakes or reducing speed.

A most significant test of liability growing out of such an accident went through the Wisconsin courts only last year. The owner-driver, with whom another person was going along for the ride, while proceeding at 40 to 45 miles permitted the truck to go off the edge of the concrete pavement and to get onto a shoulder from 1 to 4 in. lower. In order to return wholly to the highway, the driver swung the vehicle sharply to the left without applying the brakes or attempting to slow down. The truck, with its right wheels scraping the edge of the concrete, suddenly swerved to the left and across the highway into a telephone pole, killing the passenger. The suit for damages against the driver was brought by the deceased's widow.

In holding the driver liable, the court ruled that he had been negligent in allowing the truck to go off the pavement in the first place. Also, that a careful person of this driver's experience "would have slowed down the speed of his truck and applied the brakes and brought it to a stop before attempting to turn when he found that the wheel would not respond to pressure; he would have permitted the truck to continue its forward progress until it came to a point on the shoulder where the shoulder was even with the road,

## From a 70 Unit Fleet\*—

**Cylinder wear—cut 30%**

**Sticky valves—almost eliminated**

**Oil consumption—saved 13½%**


**Valve grinds—reduced 30%**

\*—Name on request

Use Miracle Power—Ask your jobber salesman or write


**AP** **Miracle Power Division**  
**THE AP PARTS CORPORATION • TOLEDO 1, OHIO**  
 Manufacturers of: MUFFLERS • PIPES • MIRACLE POWER • dgf-123





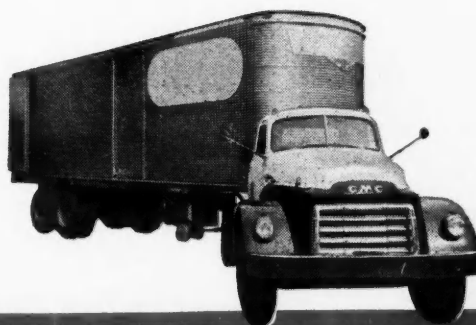
Up on the roof goes Model 87 SKIL Saw. Here a repair is in progress on a Fruehauf Stainless Steel Trailer that had been in a major accident. Damaged areas on sides, top, posts, skirting and rub rails were all sawed and patched with SKIL Saw . . . the veteran Model 87 SKIL Saw that has been taking the tough cuts in stride at Fruehauf's Chicago Branch for eleven years!

# 120 SKIL Saws speed repairs



This Model 87 SKIL Saw is eleven years old—and you'd hardly believe it if you could see the sharp, clean cuts it makes in the side of this husky Fruehauf Stainless Steel Trailer. A few more fast cuts and this job will be ready for patching . . . patching so smooth you'd have trouble finding the damaged area.

Floor repairs in a Fruehauf Stainless Steel Trailer are a cinch with SKIL Saw. Powerful, dependable, easy-to-handle SKIL Saws simplify tough sawing of wood, metal, tile and other materials. Heavy duty motors and precision gears insure long life even when SKIL Saws are kept in constant use.



# s on Fruehauf *STAINLESS STEEL* Trailers

**Fast, powerful SKIL Saws easily cut damaged sections of these light, strong stainless steel trailers!**

It takes a lot to damage these rugged Fruehauf Stainless Steel Trailers—but if repairs are called for, SKIL Saws make fast work of them *right in the shop!*

Follow the example set by the efficient Fruehauf Branches who use 120 SKIL Saws in their service departments to remove damaged areas and cut out repair patches. These branches have used fast-cutting, dependable SKIL Saws for years—have relied on SKIL Saws to provide the power for cutting .016 to .060 stainless steel.

Study these "on-the-job" photos. Then put SKIL Saws to the test. Remember—SKIL Saws, Drills, Bench Grinders, Auto Polishers, Valve Refacers, Valve Shops and other famous SKIL Tools can add to the efficiency of your automotive shop. Ask your jobber to show you the big SKIL Line today!

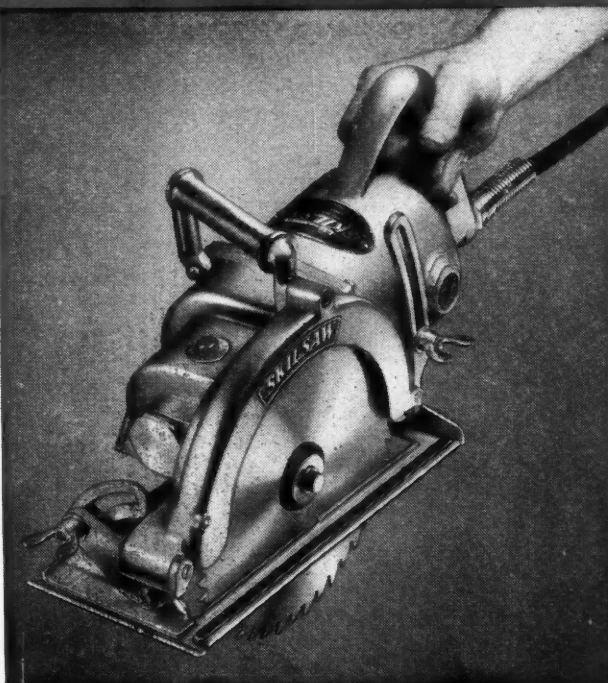
SKIL Products are made only by

**SKILSAW, INC.**

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**SKIL**  
PORTABLE TOOLS



SKIL Saws SKIL Sanders SKIL Grinders SKIL Sanders SKIL Drills SKIL Shear SKIL Grinders

# Used Oil Analysis

Continued from Page 61

cal factors would probably so outweigh the oil factors that except for the lowest grade oils, the lubricants would be barely distinguishable. However, the oil analyses from this fleet would be vastly different from those of a well-maintained fleet.

A one pint sample is withdrawn from the vehicle's crankcase by the oil com-

pany's field representative and submitted to the laboratory for analysis. The tests generally used to determine the used oil and the engine condition are designed to measure the viscosity change and the amount and kind of contaminants present in the oil. An experienced engineer from the oil company's technical staff interprets the data and

reports defects in engine or oil performance and the remedies necessary to correct them. This information is presented to the fleet operator by the field representative. Fig. 1 is a typical case of a fleet operator, who while not in serious trouble, can certainly benefit from this service by taking steps to correct the deficiencies detected by the analysis of used oil from one of his vehicles.

## Viscosity Factors

**T**HE correct viscosity of an oil at various seasons is always prescribed by the various engine manufacturers. The S.A.E. grade recommended depends upon engine clearances, starting characteristics, consumption characteristics, etc. Generally, the viscosity of crankcase oil changes very little in service when normal operating conditions, maintenance practices and drain periods are observed. However, when it does change into the next higher or lower S.A.E. grade, the oil should be drained and the reason for the change should be determined. When viscosity decreases or thinning is apparent from the analysis the reason is usually fuel dilution.

Viscosity increase or thickening, except in cases where by mistake the wrong grade oil was used, is caused by the presence of solid materials such as fuel soot, lead compounds, dirt and others or because moisture has formed a thick mayonnaise-like emulsion with the oil. A third cause of viscosity increase is actual oil oxidation or deterioration in the engine. Some oils form insoluble oxidation products causing a thickening of the oil.

## Solid Materials Tests

**T**HE next series of tests will evaluate the percentage and type of solid materials in the oil. These insoluble materials can be grouped as solids from:

### Outside the Engine Engine Itself

Dirt or Sand	Metals such as
	Iron, Babbitt, Copper
Soot—(In smoky areas only)	Bronze, Aluminum

### Fuel Combustion or Deterioration

Soot

Gums  
Carbon (Gums after long exposure in high temperature).

### Oil Deterioration

Tars & Asphaltic Material

Lead Compounds

Carbon Particles  
(Coffee Grounds)

(TURN TO PAGE 150, PLEASE)

# for greater safety



## emergency lites

POLICE - FIRE - AMBULANCES - WRECKERS - SNOW PLOWS

### IMPROVED 2-WAY LITE

**KD 868** New simplified design . . . exceptionally strong construction . . . diameter 5" . . . mountable anywhere. Red-Red, Red-Amber, Red-Blue, Blue-Blue. Crinkled finish lens diffuses light. Two reflectors with 21-cp bulb. Flasher not included . . . order KD 2565.



KD 868



KD 254D  
DUALITE

### DUALITE

**KD 254D** Two-way lite . . . cab or fender mounting . . . 7" lens . . . Blue-Blue, Red-Red, Amber-Amber, Amber-Red, two 21-cp bulbs. Three holes in each heavy gauge bracket for mounting

. . . extra plate reinforces body bolt holes. Black body . . . stainless steel doors. Flasher not included . . . order KD 2569.

### SEALED BEAM RED

**KD B860E** Black  
**KD C860E** Chrome

Glass Sealed Beam 4013R bulb. Fits any car or truck . . . bumper bar clamp for easy mounting. Flasher not included . . . order KD 2567.



KD 860E

### BLUE OR RED

**KD B861E** Black  
**KD C861E** Chrome

Silver plated brass reflector. 32-cp bulb. 6" lens . . . designed for highest emergency lighting efficiency. Single screw holds one-piece door rigidly in place. Easy mounting on any car or



KD 861E

### ECONOMY LITE

**KD 853** Silver plated reflector. 32-cp bulb. 4 1/2" Red Lens. Roof or fender mounting. Flasher not included . . . order KD 2567.



KD 853

**KD C853** Brass Body . . . Chrome Finish.

**KD SD853** Black . . . Stainless Steel Door.

PROTECTED BY  
**BONDERITE**  
CORROSION RESISTANT

truck. Flasher not included . . . order KD 2567.

# K-D LAMP COMPANY

1910 ELM STREET  
WAREHOUSES: CHICAGO - LOS ANGELES - NEW YORK

CINCINNATI 10, OHIO



## "Percentage of Gasolene Wasted"

**If this is important to your fleet operation then write Cities Service today for a free demonstration analysis.**

**Here's how this helpful service benefits you:** The exclusive Cities Service Power Prover is an important part of the Cities Service "Clean Engine" Program. The unique instrument detects poor combustion. It tells you quickly and accurately the percentage of gasolene wasted by each vehicle in your fleet. Necessary adjustments are then made to reduce this waste.

Scores of major fleet operators are profiting from this unique service. Their typical maintenance schedule includes: first, crankcase drains of all fleet



*All gasolene-powered vehicles benefit by this unique Cities Service Power Prover test.*

units. Next Cisco Solvent is used to flush out trouble making deposits. Then the crankcase is refilled with Cisco 800 Series Motor Oil. Now comes the Power Prover test to check the exact efficiency of combustion. This process is repeated at every other oil change period.

The results of this "clean engine" maintenance program have been lower operating costs per mile . . . lower gasolene consumption and reduced maintenance and repair expense. Put this program to work on your fleet. Use coupon below.



CITIES SERVICE OIL COMPANY  
Sixty Wall Tower, Room 1217, New York City, N. Y.  
Please send me without obligation information  
about your "Clean Engine" Program and the ex-  
clusive Power Prover.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

## Oil Analysis

Continued from Page 148

Further analysis shows that these materials exist in the oil in two forms—dispersed solids and undispersed solids. Solids effectively dispersed in the oil generally are harmless in moderate quantities. Undispersed solids are materials which are large enough or heavy enough to settle out of the oil (thus forming sludge) or to be deposited on filter elements. It is the undispersed

solids that are the potential sludge formers.

A non-detergent oil never appears too dirty during its service life or when drained. Under these conditions sludge deposits (detectable only through oil analysis or engine disassembly) build up. Detergent oils quickly become dirty in appearance as the contaminants are kept small in size and are dispersed harmlessly throughout the oil. These solids will be removed with the oil at the oil change. Maintaining a safe drain period using this type of oil will keep sludge deposits from building up.

*Here is what happens  
when you use anything but  
the Best in Brake Fluid...*



UNRETOUCHED PHOTOGRAPH

It's bound to happen when inferior brake fluid is used—swollen rubber and corroded metal that leads to brake failure in emergencies. • So... Never use anything but the best in brake fluid. Use genuine Thermoid Hydraulic Brake Fluid. Meets or exceeds S.A.E. specifications.

# Thermoid

*the standard of quality and precision processing in brake lining; brake blocks; hydraulic fluid; cylinder assemblies; hydraulic brake parts.*



Thermoid Company • Trenton, New Jersey

In summary, the viscosity tests coupled with the dilution test on the used oil sample will generally reflect an existing maintenance or operating defect. The dilution test is an indication of the degree of completeness of combustion. Excessive dilution indicates a waste of fuel; it can contribute to higher wear; it may cause a reduction in oil pressure or increase in oil consumption, and there is evidence that it promotes certain types of corrosion (Fig. 4) and varnish problems. Excessive dilution indicates serious operation or maintenance faults.

### Test for Contaminants

**N**EXT the type and quantity of solids or contaminants in the oil are examined. Simply stated: Undispersed Solids + Dispersed Solids = Total Solids. High total solids indicate that the oil and/or filter good performance life is over. This may be due to an over-extended drain and filter period (Fig. 3) or to a part failure Fig. 5.

If the analysis indicates that the undispersed solids are abnormal, a breakdown as to type of solid will indicate for example if the material is entering from outside the engine such as: dirty, ineffective air cleaner, sabotage, or engine parts not cleaned sufficiently prior to re-assembly (Fig. 2). These tests may indicate that the oil is too low in quality or detergency for the job it has to do or that a good oil is operating for too long a period under abnormally adverse operating conditions (Fig. 6).

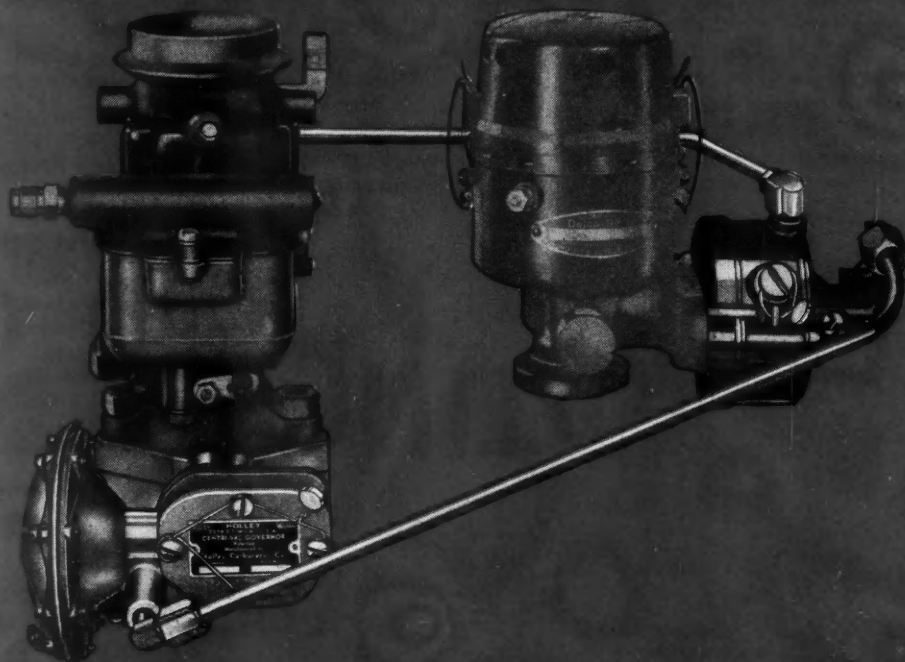
Excessive carbon particles or "coffee grounds" are due to the oil being subjected to excessive heat. Oil may "coke" under piston heads and subsequently flake off. This indicates high piston temperatures, possibly caused by detonation and/or scale in the water jacket. Water jackets should be cleaned and detonation avoided. Another source of such solids, occur when oil becomes severely oxidized. When fresh oil is added, some of the oxidized oil may become insoluble in the make up oil, thus producing these "coffee grounds." Excessive oil oxidation can be avoided by draining more frequently. Carbonized sludge deposits may also be formed as a result of exposure of previously formed sludge or emulsions to heat. In summary, if excessive carbon particles are present the remedies are one or more of the following: Eliminate the source of excessive heat; shorten oil drain period; consider a higher quality or detergent oil.

Excessive "gums" in the oil in general originate with the fuel used. Gasoline stored too long or in contaminated fuel tanks accelerates gum formations which can work down into the oil. Excessive blowby, fuel dilution or inadequate

(TURN TO PAGE 152, PLEASE)

# HOLLEY *Centrivac* GOVERNORS

COMBINED WITH DELCO-REMY DISTRIBUTORS



*The Most Advanced Type of  
Economical Governor Control*

**IMPROVED SPEED REGULATION:** The new Holley Centrivac Governor is operated by a vacuum powered diaphragm which is controlled by a centrifugal air valve mounted on side of distributor. This insures more even flow of power—a higher economy factor—improved engine performance.

**FASTER ACCELERATION—NO SURGING:** The Holley Governor design permits the engine to accelerate normally, since the governor throttle remains *wide open* up to the desired speed control. This feature eliminates engine surging with definite

improvement of truck operation—less wear and tear on drivers' nerves.

**REDUCES POWER LOSS:** The Holley Governor cannot choke the engine when pulling heavy loads up hills because the throttle remains wide open until the speed control point is reached. This reduces power loss, improves operating efficiency.

**ECONOMICALLY INSTALLED:** Due to its new and revolutionary design, the Holley Centrivac Sandwich Governor can be installed on most popular truck engines without need for special drive, linkage, or adapter accessories. Only one piece of metal tubing is used, connecting governor control valve with the governor mechanism.

**NOW  
CHOICE OF THE LEADERS**

**STANDARD EQUIPMENT ON**

AUTOCAR • CHECKER BUS • FORD TRUCKS • GENERAL AMERICAN  
AEROCOACH • GENERAL MOTORS TRUCK AND COACH  
FLEXIBLE BUS • INTERNATIONAL HARVESTER • MOTOR  
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ALSO AVAILABLE FOR  
ALL OTHER POPULAR MAKES OF TRUCKS

**HOLLEY**  
*Carburetor Co.*

5930 VANCOUVER AVE.

DETROIT 8, MICHIGAN

AUTOMOTIVE EQUIPMENT AND ACCESSORIES

## Oil Analysis

Continued from Page 150

crankcase ventilation may cause gums to be present in the oil.

Excessive "tar and asphaltic materials" generally are a result of oil deterioration. This condition may be caused by high crankcase temperatures (over 250 deg F). Installation of larger crank-pan or oil coolers or a much shorter drain period may be necessary in such vehicles. These contaminants

are found in virtually all vehicles operated with greatly extended oil drain periods. Frequently oils of insufficient quality and detergency for the conditions under which they are used have a tendency to form such solids.

The doctor does not wait until the patient is dead to diagnose the illness. Similarly, the fleet operator cannot afford to wait until engine failure or costly, premature overhaul occurs to discover faults in his maintenance or operating practices. Laboratory used oil analyses will enable the operator to diagnose the fleet's "ailments" and pro-

ceed with methods designed to cure them.

The Pure Oil Co. and several other oil companies offer this type of service to fleet owners. Several years of experience have shown that a system of periodic used oil inspections is a valuable aid to a fleet operator in properly maintaining his fleet and utilizing to the fullest the quality that is built into the petroleum products that he uses.

END

Please Resume Reading Page 62

## Industrial Notes

PRODUCTION of man-made rubber has begun at the giant Institute, West Va., plant, of B. F. Goodrich Chemical Company.

GOODYEAR TIRE & RUBBER CO. has announced a new district office and warehouse at Wichita, Kansas, which will serve Kansas communities and dealers.

RED STAR TRANSIT CO., Detroit, has just completed a new \$125,000 terminal at Toledo, Ohio.

BLACK & DECKER MFG. CO., Towson, Maryland, announced that they had purchased approximately 180 acres at Hampstead, Maryland, for a branch plant.

HOWE SCALE CO. has opened two branch offices, one in Denver, Col., the other in Houston, Texas.

FLEXIBLE TUBING CORP. has a new factory at Guilford, Conn., and as a result hopes to triple output of flexible tubing.

THE FORD MOTOR COMPANY has opened a regional public relations office in Washington, D. C.

CATERPILLAR-TRACTOR CO. has an additional sales division to meet the expanding and pressing needs brought on by the national emergency, to be known as the Plains division.

PENNSYLVANIA REFINING COMPANY of Cleveland, Ohio, has announced that Bert Kaple, Inc., Atlanta, Georgia, has been appointed sales representatives for Gumout carburetor detergent.

THE FRUEHAUF TRAILER COMPANY has been awarded a contract by the Ordnance-Tank Automotive Center at Detroit to manufacture more than 35,000 all-purpose cargo trailers to be used by all branches of the Armed Services.

FORD MOTOR CO. has purchased a nine-acre site in Dallas, Texas, for the construction of a service parts depot.

FORD MOTOR COMPANY will build a service parts depot on its new industrial site in Natick, Mass., which will be able to handle 10,000 different service parts and accessories for some 286 Ford dealers.

# Keep'em ROLLING!





**No. 8050 Heavy-Duty Four-Way Rim Wrench.** Overall Length 25", Weight 14 lbs.



**No. 2648 Two-Piece Rim Wrench.** Overall Length 18", Weight 5 lbs.



**No. 7050 Two-Piece Rim Wrench.** Overall Length 20", Weight 4 1/2 lbs.



**No. WR-2640 Brace Rim Wrench.** Overall Length 31", Weight 6 1/2 lbs.

## with Apco Mossberg RIM WRENCHES

**Speed Up Truck Repair Time**

IN-THE-SHOP

ON-THE-ROAD

Powerfully constructed by steel-forging, these popular wrenches with heavy-duty abilities are designed to fit all makes and models of trucks. Rim wrenches are available in three styles — (1) Two-Piece (2) Four-Way (3) Brace. Each wrench features extra deep sockets for firm grip on nuts, ample leverage requiring less effort to disengage nuts, extra long lengths for sufficient clearance with wire wheels, deep hubs.

Apco Mossberg's complete line of truck wrenches and handy service tools are recognized for superiority by repairmen in fleet shops from coast to coast. Ask your jobber or write today for catalog and prices.

**APCO MOSSBERG CO.**

187 LAMB STREET, ATTLEBORO, MASS.

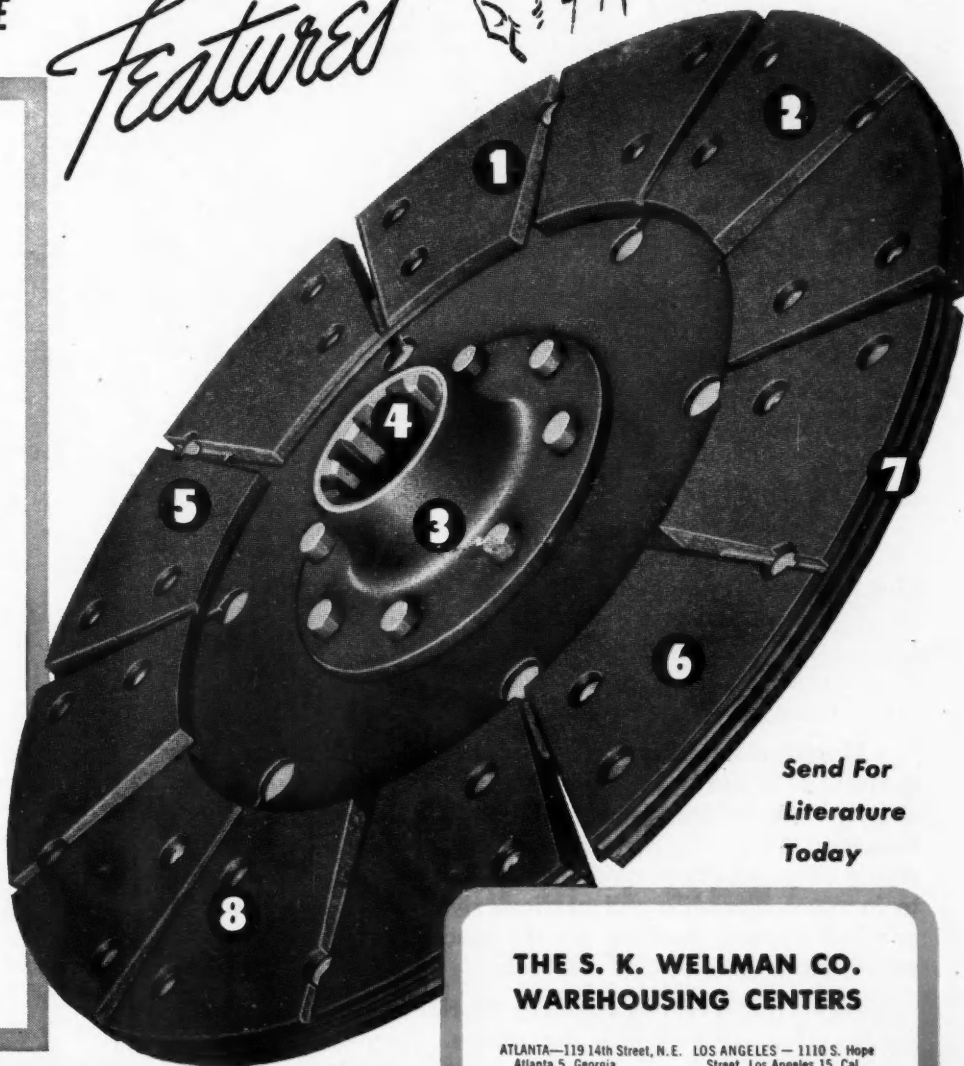
"ENGINEERED FOR  
HEAVY DUTY SERVICE"



ONLY VELVETOUCH ALL-METAL CLUTCH PLATES  
GIVE YOU ALL THESE

*Features*

1. **ADDED MILEAGE.** Velvetouch lasts longer, requires fewer adjustments.
2. **EXTRA SAFETY.** Metal construction insures uniform friction . . . is little affected by extreme operating conditions.
3. **HEAVY DUTY HUB.** Forged steel hub and spring steel plate cut expensive tear-outs.
4. **EASY INSTALLATION.** Precision machined to speed installation.
5. **LOW COST.** Measured in added mileage, Velvetouch costs less.
6. **NOT AFFECTED BY OIL OR GREASE.** Unlike asbestos, oil and grease can't harm Velvetouch.
7. **HEAVY DUTY BUILT.** Friction is fused with solid steel backing.
8. **RUNS COOLER.** Asbestos won't conduct heat, but Velvetouch carries it away to protect opposing plate.



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Literature  
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1924-1951

**Velvetouch**

THE S. K. WELLMAN CO • 1374 E. 51st ST • CLEVELAND 3, OHIO

**THE S. K. WELLMAN CO.  
WAREHOUSING CENTERS**

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CHICAGO—2800 South Parkway, Chicago 16, Illinois	PHILADELPHIA—97 E. Montana Street, Philadelphia 19, Pa.
CLEVELAND—1392 East 51st Street, Cleveland 3, Ohio	PORTLAND—636 N. W. 16th Ave., Portland 9, Oregon
DALLAS—3407 Main Street, Dallas 1, Texas	SAN FRANCISCO—424 Bryant St., San Francisco 7, California
TORONTO, ONTARIO The S. K. Wellman Co. of Canada, Ltd., 2839 Dufferin St.	
EXPORT DEPARTMENT— 8 So. Michigan Ave., Chicago 3, Ill., U. S. A.	
WASHINGTON OFFICE— 1101 Vermont Ave., N. W., Washington 5, D. C.	

# NEW GUN IRON BRAKE DRUMS



**at LOWER COST-PER-MILE, too**

Hunt-Spiller Brake Drums are now being made of a new Gun Iron alloy which eliminates heat-checking in all but the most severe cases and at the same time equals or surpasses the wear-life of previous Gun Iron drums. In addition, in most instances, these drums take the squeal out of heavy-duty braking.

Hunt-Spiller pioneered the first cast brake drum over twenty years ago . . . a Gun Iron drum that wore so well it shortly was adopted and preferred by the bus and truck industry. This *new* material, an alloy of Gun Iron, is the result of years of research in the Hunt-Spiller laboratories to increase wear-life and particularly overcome the serious problem of heat-checking. On-the-road performance records prove the success of that research.

Hunt-Spiller drums are made to original equipment specifications for most busses and trucks. They are accurately machined for easy, kink-free installation; fully guaranteed. For complete details send for new descriptive bulletin which includes some outstanding results reported by users.



## HUNT • SPILLER

MANUFACTURING CORPORATION

AUTOMOTIVE DIVISION

399 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

## Van Body . . .

Continued from Page 121

### Operating Features

**T**HE type of construction suggested here permits unlimited rear-end combinations as well as different rear and side door sizes, types and locations.

One most important feature, both from the standpoint of utility and appearance, is the clean unobstructed interiors and inside corners.

It cannot be over emphasized that the overall appearance of this unit may be further enhanced by careful consideration of a color and lettering or decal layout which will blend into the modern chassis lines of today, and which employs suitable colors and symbols suggestive of the product being delivered.

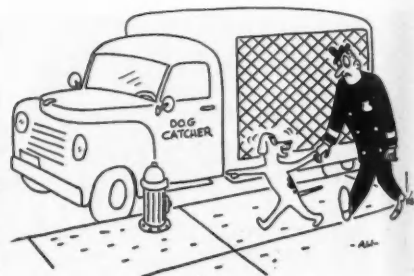
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Please Resume Reading Page 64

### Road Repair Needed

Declaring that the highways of the nation are now in a "seriously weakened condition resulting from inadequate maintenance and construction during the depression and neglect during the last war," the American Association of State Highway Officials at a recent meeting in Washington, called for "a continuing and accelerated program of highway construction and maintenance" to sustain the nation's defense and economic requirements, in a resolution passed at the annual meeting of the association in Miami.

In support of the resolution other speakers at the meeting told the delegates of the vital position of the nation's road system. Major General Philip B. Flemming, Under Secretary of Commerce for Transportation, told of the preliminary reports of the Maryland tests which support the 18,000 pound truck axle limit. He said that the industry would be "ill advised" to question the findings of the Highway Research Board when the Maryland test has been completed.



"Look, he's parked by a fire hydrant!"



## Maintenance costs got you in a stew?

**T**HEN here's a good suggestion. Follow the example set by thrifty fleet operators the country over. Cut maintenance costs and improve operating efficiency by protecting your equipment with Quaker State HD Oil . . . the best engine lubricant money can buy.

Made from 100% pure Pennsylvania grade crude oil, Quaker State HD Oil is refined with the most modern processing equipment and with technical skill unsurpassed in the

industry. It is compounded with chemical detergents of highest quality.

It not only protects against friction and heat under most grueling conditions—but it helps prevent formation of sludge, gum and varnish, and actually *cleans* as it lubricates.

Use Quaker State HD Oil in your equipment. It will help you cut maintenance costs and increase performance efficiency.

**QUAKER STATE**  
**HD OIL**  
AND SUPERFINE LUBRICANTS

Use Quaker State HD Oil for trucks, buses, taxis, tractors.  
Use Quaker State Motor Oil for passenger cars.

QUAKER STATE OIL REFINING CORPORATION, OIL CITY, PA.

COMMERCIAL CAR JOURNAL, February, 1951

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## Maryland Road Test

Continued from Page 66

ous factors, the especial importance of the underlying soil is apparent.

"The other matter is the demonstration given by this project of the benefits of cooperation by a number of diverse agencies in research on a problem of great mutual importance, by pooling their support under the direction of an

independent institution which can have no possible interest in the matter other than the development of facts and acquisition of new knowledge."

### Taragin Summarizes Findings

A SUMMARY of the voluminous data collected on Road Test One—MD

## THE BIEDERMAN TRUCK



**An All-Star Truck  
Constructed of All-Star Units  
Doing an All-Star Job Since 1920**

**DEALERS:** Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

Biederman Trucks win by performance. Inquiries regarding dealership solicited.

WRITE, WIRE or PHONE

**BIEDERMAN MOTORS CORPORATION  
CINCINNATI 14, OHIO**

was presented by Project Engineer A. Taragin. He started with a description of the test road, test vehicles, procedures and operations along the lines presented to CCJ readers in the July, 1950, issue. Then he described the progress of the test along the lines outlined to CCJ readers in the September, 1950, issue but bringing in the final reports on the project—as shown in the accompanying tables, graphs and photographs.

"This is just an interim report," said Taragin by way of summary. "All pertinent data must be carefully analyzed and considered before a final report may be issued. However, certain facts relative to the behavior of the pavement under test have been definitely established by the Advisory Committee."

The more significant observations which may be made from the test results as of December 23, as stated by the Advisory Committee, are as follows:

"1. Soil tests made on samples obtained throughout the length of the pavement adjacent to the pavement edges, and under certain sections of the pavement, indicate that there is reasonable uniformity in the soils on the two sides of the pavement.

"2. Based on those same soil tests, there is found to be a definite correlation between soil type and pavement behavior. The higher the granular content and the lower the plasticity of the soil, the better the performance. The subgrade soils on this project are typical of the soils underlying a very extensive mileage of concrete pavement throughout the country.

"3. The progress of cracking and depression of joints in the test sections has a definite relationship to the occurrence of pumping. Previous research and observation have shown that four basic conditions must be present simultaneously to create a pumping slab. They are: (a) Frequent heavy axle loads; (b) subgrade soils of such a nature that they may pump through open joints or cracks or at pavement edges; (c) free water under the pavement; and (d) joints or cracks in the pavement. These conditions were present on this project and pumping resulted.

"4. Based on both quality tests and dimension measurements, the concrete in the test sections is of good strength and of the designed thickness.

"5. All four sections were damaged as follows by the loads applied:

"(a) The 44,800-lb. tandem axle loads caused approximately 11 times as much cracking (lineal feet) as the 32,000-lb. tandem axle loads. This relationship held true over a period of almost four months, that is from 20,000 to 92,000 truck passes in each lane.

(TURN TO PAGE 158, PLEASE)



"... WE WANT TIRES  
STRONG ENOUGH FOR  
SEVERAL RECAPPINGS  
... SO SEND US  
**MOHAWKS!**"

Fleet owners nationwide report that the *complete life* of Mohawk Tires gives more miles at less cost . . . First, the original tread lasts longer, because of its extra-tough, heat-resistant construction. And the carcass of every Mohawk Truck Tire has surplus-strength—it's strong enough to handle several recappings. Fleet owners know that an undamaged Mohawk Tire with a smooth tread is still a valuable asset. So, they recap it, keep rolling, and save money.

# **THE MOHAWK RUBBER COMPANY**

Akron 5, Ohio

Export Department, 1819 Broadway, New York 23, N. Y.  
Cable "Mohawk" New York



## **SUPER CHIEF TRUCK**

An extra tread, heavy-duty truck tire for extremely long mileage. Vented shoulders reduce heat, insure longer wear.

## Md. Road Test . . .

Continued from Page 156

"(b) The 22,400-lb. single-axle loads caused approximately six times as much cracking (lineal feet) as the 18,000-lb. single-axle loads. This relationship held true over a period of over five months, that is from 35,000 to 238,000 truck passes in each lane.

"(c) After 84,000 truck passes, 80 per cent of the joints in the section carrying 44,800-lb. tandem-axle loads

were depressed; whereas, with the same number of truck passes, only 10 per cent of the joints in the section carrying 32,000-lb. tandem-axle loads were depressed. (Depressed joints are defined as those joints at which a marked localized settlement of the pavement has occurred accompanied by cracking of the pavement in the vicinity of the joint.)

"(d) After 137,000 truck passes, 22 per cent of the joints in the section carrying 22,400-lb. single-axle loads were depressed; whereas, with the same number of truck passes, only 2 per cent

of the joints in the section carrying 18,000-lb. single-axle loads were depressed.

"6. (a) After 238,000 truck passes, 28 per cent of the slabs in the section under 18,000-lb. single-axle loads and 64 per cent of the slabs under 22,400-lb. axle loads contained cracks which have been analyzed as constituting structural failures due to the application of the test axle loads. Conversely, 72 per cent of the slabs in the 18,000-lb. section and 36 per cent of the slabs in the 22,400-lb. section show no such structural failures.

"(b) After 92,000 truck passes, 27 per cent of the slabs in the section under 32,000-lb. tandem-axle loads and 96 per cent of the slabs under 44,800-lb. tandem-axle loads contained cracks which have been analyzed as constituting structural failures due to the application of the test axle loads. Conversely, 73 per cent of the slabs in the 32,000-lb. section and 4 per cent of the slabs in the 44,800-lb. section show no such structural failures."

### Warping Stress Measured

WHILE the axle-load tests were in progress, other data were being gathered that would prove useful in the planning and construction of future highways. One of these was the measurement of warping stresses of various slabs under traffic and temperature conditions. These measurements, along the free edges and transverse joints, were made by E. C. Sutherland and H. D. Cashell. Mr. Sutherland described these fully at the meeting. However, because of their highly technical nature, these data have been omitted from this report.

Many other tests will have to be made before the project is officially closed. For that reason, the test road has not been placed into public use, nor may be until this Spring; and not until the road is restored to a safe and sound condition.

As a concluding phase of the Maryland Road Test Report, Fred Burggraf, Chairman of the Road Test Executive Committee, described some of these other tests to be made at Road Test One—MD. One is a detailed soil survey. In this connection, Burggraf said that plans are under way to dig a trench the full length of the project along both edges of the pavement. This will afford an opportunity to locate definitely the transition points between soils of different types, to observe changes in the vertical profile, and to obtain a photographic record of this important component of the road structure. It, in conjunction with soil samples taken from under the pavement, will permit a more accurate analysis of soil and pave-

(TURN TO PAGE 160, PLEASE)

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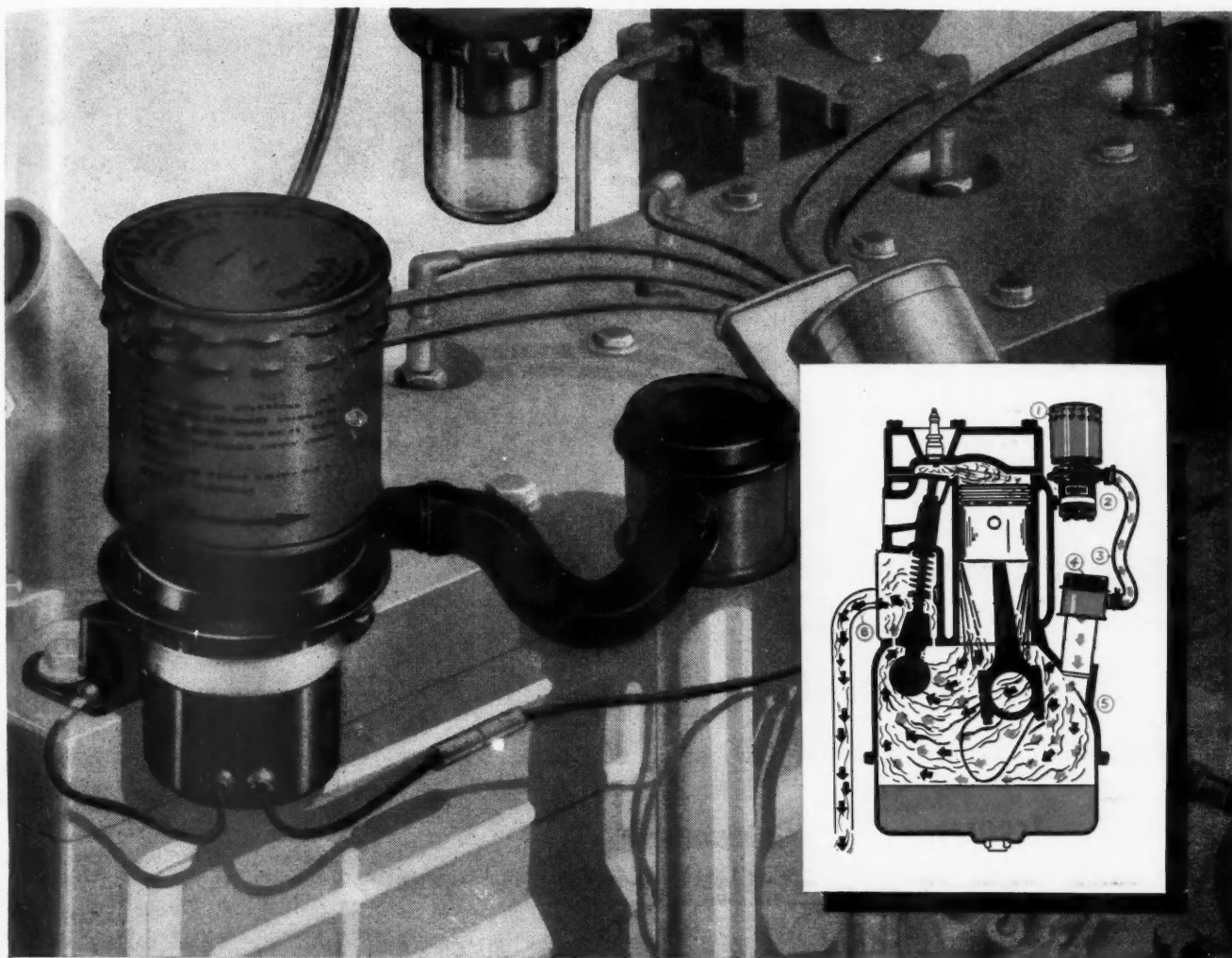


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## Maryland Road Test . . .

Continued from Page 158

**TABLE 4.—Shoulder and Joint Maintenance**

(Number of Times Each Item of Maintenance was Performed During Each Month)

Type of Maintenance	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
<b>SHOULDERS</b>							
Dragged	3	2	1	2	1	1	9
Bladed	2	2	2	1	1	1	5
Gravel Added	2	2	1	1	1	1	5
Maintained by Hand Labor	1	2	1	1	1	1	3
Rolled and Calcium Chlorided	1	1	1	1	1	1	1
Total Number of Times Shoulders Maintained	6	6	5	3	2	1	23
<b>JOINTS RESEALED</b>	2	2	2	1	3	1	11



Table at left summarizes shoulder and expansion joint maintenance on the test road. Above, two Maryland highway maintenance men cleaning joints to be refilled with blown asphalt mix

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ment behavior. It also may permit comparisons of Sections 1 and 2 with Sections 3 and 4.

Other tests will include measurements of strain and corner deflection, and another series of quantitative concrete tests.

### 30 Years Since Last Test

**SUMMARIZING** the road test project, Mr. Burggraf said, "It is a rather startling reflection that the last investigation of this nature was made nearly 30 years ago by the Illinois Division of Highways on the project known as the Bates Road Test.

"Great changes have taken place since then in the field of highway transportation, but research on the effect of truck axle loads on pavements continued to lag behind that of the rapidly growing trucking industry."

In evaluating the project as a whole, Mr. Burggraf pointed out that "the three main results of this investigation are:

"1. It has furnished highway administrators and engineers with quantitative facts regarding the effect of axle loads of different intensity on a concrete road.

"2. It has increased, and to a certain extent verified, our knowledge of the interrelationship between loads, pavements and subgrades.

"3. It has acted as a stimulus for further research.

"The following resolution, passed at the Annual Meeting of the American Association of State Highway Officials last month (December, 1950) sums up tersely the opinion of the highway administrators about this research project:

"WHEREAS, a research project consisting of tests under the sponsorship of several States is now being carried on to ascertain the effect on highway pavements of the repeated applications of heavy loads and

"WHEREAS, this project is producing information of great value to

(TURN TO PAGE 162, PLEASE)



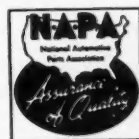
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(CONTINUED FROM PAGE 160)

highway officials responsible for the construction and maintenance of the highway system. Now, therefore, be it

"RESOLVED, that the American Association of State Highway Officials in convention assembled in Miami, Florida, December 4-7, 1950, urges the promotion and encouragement of further studies by the States or groups thereof to obtain more specific information on this problem."

"The Transport Committee of the American Association of State Highway Officials has been very active in

promoting additional research projects, and three of the regional Associations of State Highway Officials have this matter under consideration.

"In general, the tentative plans are for the Southeastern Association of State Highway Officials and the Western Association of State Highway Officials each to finance a research project on a bituminous type pavement, and the Mississippi Valley Association of State Highway Officials to finance a research project on another concrete pavement.

"These additional tests under other conditions, including a different type

of pavement, are necessary to obtain a more complete answer.

"And the application of this acquired knowledge in the field of transportation technology will be mutually beneficial to the highway user, the vehicle designer and the highway administrator."

**EDITORS' NOTE**—This is a purely objective report. CCJ believes that the results are still inconclusive. Next month, if additional data are released on the subsequent findings of the Highway Research Board, editorial comments will be made to relate the data compiled to actual conditions existing on the nation's highways.

END

Please resume reading page 67

## Legislative Outlook . . .

Continued from Page 57

FOR many years highway users have been aware of the many hundreds of miles which could have been built if states had not diverted large portions of their highway user revenues to other purposes. To prevent this practice, which has undoubtedly contributed in large part to the inadequacy of many state highway systems, 21 states have already have passed constitutional amendments (called Good Roads Amendments) which prohibit or limit diversion. During the 1951 legislative session, Good Roads Amendments may be considered in Arizona, Connecticut, Delaware, Georgia, Illinois, Maryland, New Jersey, New Mexico, New York, Utah, Vermont and Wyoming.

A DETAILED state-by-state list of proposed legislation, as reported to the National Highway Users Conference, follows. Some will be favored by user groups; some undoubtedly will be opposed. These are the proposals:

ALABAMA—(1) \$3 automobile license tag. (2) Changes in traffic laws to conform more closely with the Uniform Code. (3) Increase in gasoline tax.

ARIZONA—(1) Anti-diversion constitutional amendment. (2) Reciprocity enabling act. (3) Acts II and III of the Uniform Code. (4) Repeal of 2½ per cent Gross Receipts Tax on commercial truck operations. (5) Increased gasoline taxes.

ARKANSAS—(1) Increase in gasoline tax. (2) Increase the present \$5 automobile license fee to \$7.50 or \$10.

CALIFORNIA—(1) Increase in Use Fuel (other than gasoline) tax from 4½ to 6½ cents per gallon. (2) Changeover from unladen weight to gross weight basis for registering trucks. (3) Proposal for toll-road authority. (4) Mileage tax for all trucks. (5) Issuance of highway debentures. (6) Increase in gasoline tax. (7) Traffic law revision resulting from comparison of existing laws with all five acts of the Uniform Code.

COLORADO—(1) Increase in gasoline tax and registration fees. (2) Revision of Traffic Laws to conform with Uniform

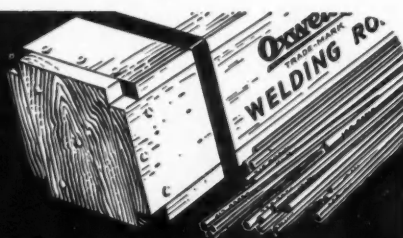
(TURN TO PAGE 164, PLEASE)

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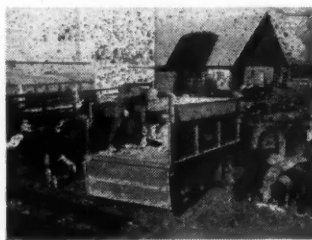


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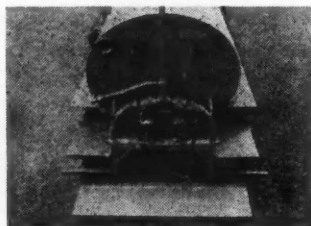
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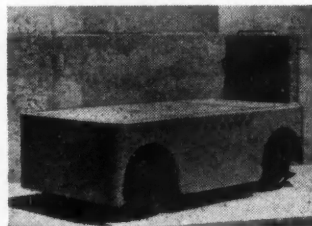
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(CONTINUED FROM PAGE 162)

Code. (3) Reorganization of Highway Department. (4) Long-range highway plan. (5) Legislation to remove existing toll-road law from the books. (6) Driver responsibility laws to be made stronger.

**CONNECTICUT**—(1) Ton-mile taxes. (2) Comparison of motor laws with Uniform Code. (3) Good Roads Amendment. (4) Highway program of Highway Department.

**DELAWARE**—(1) Constitutional amendment against diversion. (2) Financial responsibility act. (3) Comparison of existing laws with Uniform Code. (4) Approval of Wilmington Traffic Study and appropriation made to construct by-passes. (5) Highway needs planning committee.

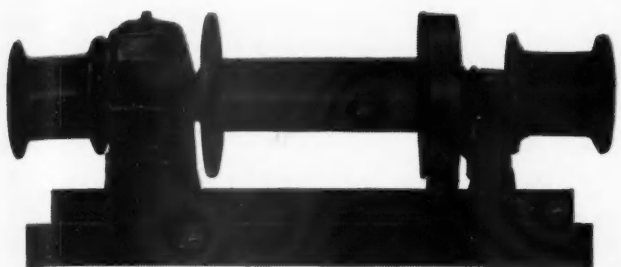
**FLORIDA**—(1) Long-range highway planning committee. (2) Reduction or elimination of diversion of highway funds by statute rather than by Constitutional Amendment. (3) Closer conformity to the Uniform Code.

**GEORGIA**—(1) Constitutional amendment against diversion. (2) Act V of Uniform Code, with possibility of bills being introduced calling for safety responsibility law, title law and motor vehicle inspection law. (3) Repeal of so-called nuisance taxes. (4) Recommendation that temporary tax of 1 cent per gal. on gasoline, passed as emergency tax at the extra session last year, be allowed to expire. (5) Amendments to present law governing operation of Highway Department. (6) Equalization of ad valorem tax on automobiles. (7) Increase in number of state highway patrolmen.

**IDAHO**—(1) Acts II and V, Uniform Code. (2) 50 per cent increase in truck trailer fees. (3) Consolidation of county highway districts.

**ILLINOIS**—(1) Constitutional amendment prohibiting diversion of highway funds. (2) Recovery of \$78 million of diverted highway funds through \$10 million per year recoupments from General Fund. (3) Amend traffic laws to conform to Uniform Code and Illinois Highway Safety Conference recommendations. (4) Speed up consolidation of township road units into larger districts. (5) Increase in gasoline tax. (6) Increase in truck license fees. (7) Heavier penalties on overloading, including license revocation, and strengthened enforcement. (8) Lower axle-load limitations under 18,000 lbs. (9) Revise highway fund distribution formula. (10) Permit local licensing of service businesses, including motor vehicles. (11) Authorize "use tax" on out-of-state purchases of automobiles. (12) More rigid driver license tests. (13) Increase motor vehicle lengths to match AASHO code. (14) Create state office of Civilian Defense with emergency powers to act in event of atomic war outbreak. (15) Creation of a Department of Highways and taking the highway responsibilities from the Department of Public Works and Buildings. (16) Abolition of Division of Motor Carriers in the Department of Public Works, and transferring those duties to the State Police and the Secretary of State.

(TURN TO PAGE 166, PLEASE)



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(CONTINUED FROM PAGE 164)

**INDIANA**—(1) Require local units receiving revenues from the Motor Vehicle Account Fund to establish special fund for those revenues, also provide additional controls over those funds. (2) Recoupment of \$14 million diverted from Motor Vehicle Funds. (3) Establish bi-partisan selection of State Highway Department employees. (4) Establish qualifications for county road supervisors. (5) Revise refund system on non-highway gasoline taxes. (6) Increase salaries of highway engineers. (7) Increase in gasoline taxes. (8) Increase in truck taxes. (9) Cancellation of truck license reciprocity. (10)

Permission for cities to tax motor vehicles. (11) Require mud splash guards on trucks. (12) Place week-end ban on use of motor trucks. (13) Authorize toll-road construction.

**IOWA**—(1) Increase of 1 cent in gasoline tax. (2) Legislation enabling counties to vote bond issues for county road construction. (3) Return sales tax now going to Highway Fund to General Fund, and replace this money in Highway Fund with increased highway or user taxes. (4) Increase size and weights of vehicles to conform more closely with AASHO. (5) Revision of traffic and safety laws where needed, to conform with Uniform Code.

(6) State-wide compulsory motor vehicle inspection.

**KANSAS**—(1) Keep ton-mile tax, but set up Reciprocity Agency to work out agreements with surrounding states. (2) Re-enactment of one-fifth cent of gasoline tax to carry out phases of the county road program, as recommended in the highway study committee report. (3) Enactment of a tighter financial responsibility law. (4) Proposal permitting all counties to set up county zoning plans.

**MAINE**—(1) Repeal or modification of mileage tax on out-of-state commercial vehicles. (2) Re-examination of long-range highway plan with view to establish essential priorities. (3) Legislation designed to bring motor vehicle laws into closer conformity with the Uniform Code. (4) Extension of toll road. (5) Authorization for highway bond issue. (6) Heavier penalties on overweight vehicles.

**MARYLAND**—(1) Restrictive truck weight legislation. (2) Anti-diversion constitutional amendment. (3) Transfer of title tax revenue to Highway Fund. (4) Charge state police operation against Highway Fund. (5) Authorization for Highway Planning Committee. (6) Restrict speed limit for trucks. (7) Impose mileage tax on trucks.

**MASSACHUSETTS**—(1) Gasoline tax increase. (2) 50-75 per cent increase in registration fees. (3) Legislation to repeal limited access law. (4) Uniform laws legislation.

**MICHIGAN**—(1) Increase width of motor buses to 102 in., and length to 40 ft. (2) Require state-wide motor vehicle inspection. (3) Authorize toll road construction. (4) Increase gasoline tax. (5) Increase motor vehicle weight taxes. (6) Require township matching of local road funds. (7) Increase penalties for overload violations. (8) Decrease axle load limits. (9) Revise gasoline tax distribution formula. (10) Require consolidation of local road units. (11) Require State Highway Department to maintain trunk lines within cities. (12) Provide classification of all highways, roads and streets. (13) Change color of school buses to chrome yellow.

**MINNESOTA**—(1) Revise penalties for overloading to discourage overweight vehicles. (2) Simplification of reciprocity law and provision for pro rata registration of non-resident vehicle fleets. (3) Increase truck length in conformance with AASHO recommendations. (4) Reorganize state agencies dealing with motor vehicle transportation.

**MISSOURI**—(1) Legislation to bring Missouri's traffic laws into closer conformity with the Uniform Code. (2) Gasoline tax increase. (3) Legislation to tighten weight regulations on trucks. (4) Proposal setting up ports of entry at state borders. (5) Proposal to secure a strengthened drivers' license law that would include penalties for violations and an examination clause. (6) Impose 2 per cent title tax measured by vehicle cost. (7) Measure to collect a ton-mile or mileage tax from commercial vehicle owners. (8) Authorization for highway planning committee.

(TURN TO PAGE 168, PLEASE)



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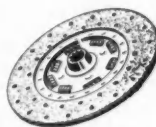
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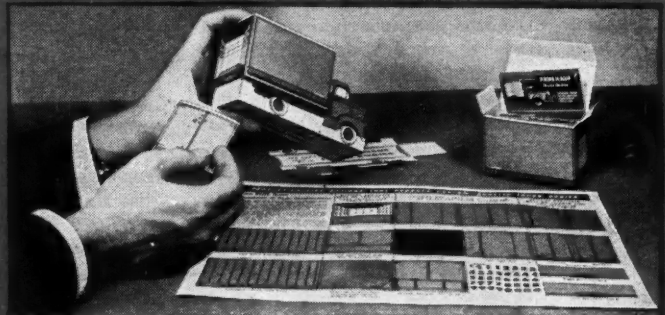
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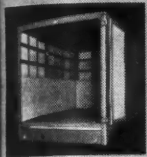
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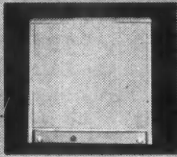
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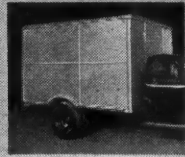
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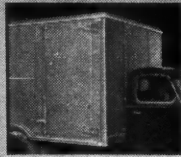
1. Open Top



2. Solid Rear End



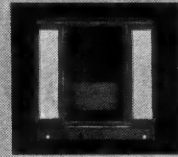
3. Solid Sides



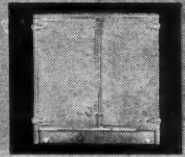
4. Single Side Door



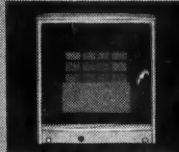
5. Double Side Door



6. Narrow Double Rear Doors



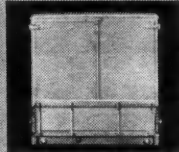
7. Full Width Rear Doors



8. No Rear Door



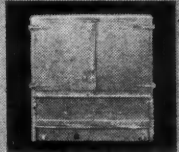
9. Express Gate Rear



10. Tailgate (Outside Type)

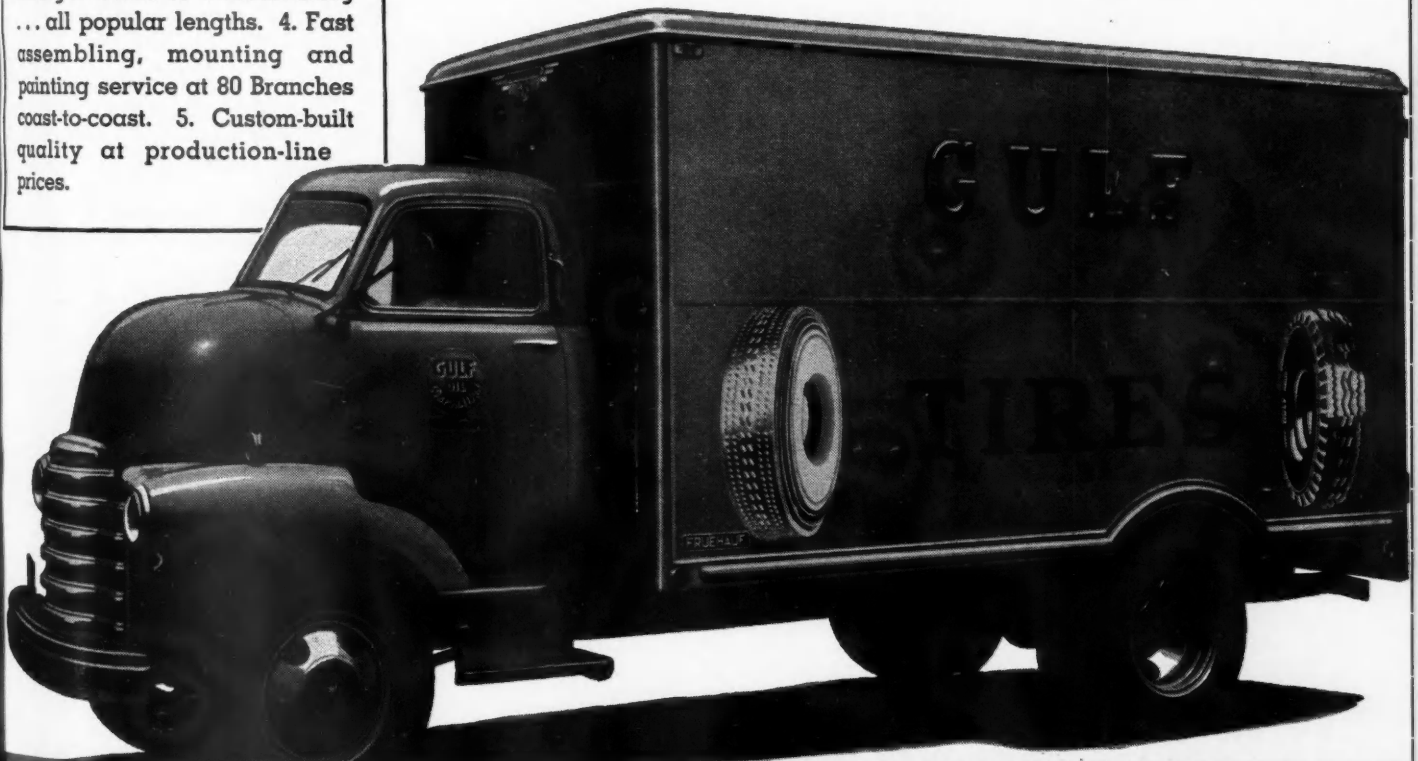


11. Tailgate (Flush Type)



12. Tailgate (Doors Above)

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(CONTINUED FROM PAGE 166)

**MONTANA**—(1) Amendment of motor vehicle laws incorporating sections of Act V. (2) Increase in gasoline tax—1 cent. (3) Gross vehicle weight tax in lieu of use tax. (4) Anti-diversion amendment. (5) Proration of non-resident truck registration fees among states of ownership. (6) Reorganization of Highway Department. (7) Tighten control of gas tax refund. (8) New transport caravan tax. (9) Transfer of petroleum production taxes to highway fund. (10) New car tax to replace property tax. (11) Transfer of Railroad Commission surplus to highway fund.

**NEBRASKA**—(1) Proposal to establish a five-man Highway Commission with a business manager to manage Highway Department. (2) Ton-mile tax on trucks. (3) Repeal of gas tax refund law. (4) Reorganize Department of Roads and Irrigation, setting up a separate Highway Department. (5) Increase in gasoline tax and license fees. (6) Repeal mail route improvement law passed in 1947. (7) Require sealed bids on all road material and construction contracts over \$500. (8) Revise motor vehicle and safety laws in conformity with Uniform Code. (9) Require annual audit of Highway Department by private audit firm on a calendar year basis.

**NEVADA**—(1) Traffic laws revision to conform with Uniform Code. (2) Repeal of 1 cent of the 1½ cent gasoline tax now going to counties and municipalities. (3) Increase of 1 cent per gal. in state gasoline tax. (4) Possible restrictive truck legislation.

**NEW HAMPSHIRE**—(1) Gasoline tax increase. (2) measure extending state road aid to cities and towns for maintenance of city streets which carry heavy through traffic. (3) Extension of toll road. (4) Fifteen-year highway plan proposed by Highway Department.

**NEW JERSEY**—(1) Anti-diversion constitutional amendment. (2) Increase state speed limit. (3) Restrict truck weights to 20,000-lb. axle—32,000-lb. tandem. (4) Increased license fees on trucks. (5) "Borrowing" of highway funds to pay for general state expenditures. (6) Ton-mile tax.

**NEW MEXICO**—(1) 1 cent reduction in state gasoline tax. (2) All five acts of Uniform Code will be submitted as motor vehicle law for New Mexico. (3) Anti-diversion amendment. (4) Limitation of issuance of highway debentures to be determined by vote of people. (5) Increase in size and weight limits for tandem axle trucks. (6) Highway planning committee.

**NEW YORK**—(1) Appointment of a special commission to develop a sound long-range highway plan and recommend means of financing. (2) Comparison of New York's existing motor vehicle laws with the Uniform Code. (3) Increased taxes on all classifications of motor vehicle owners. (4) Anti-diversion amendment. (5) Final legislative approval for a bond authorization of \$450 million to defray part of the cost of the proposed New York City to Buffalo Thruway. (6) Decrease size and weight limits.

**NORTH CAROLINA**—(1) Long-range Highway Planning Committee. (2) Safety legislation looking toward greater conformity with the Uniform Code. (3) Motor vehicle inspection law. (4) Increase in diesel fuel tax. (5) Bills will be introduced in support of the State Municipal Road Commission, to give more aid to cities for street and road purposes, from increased motor vehicle taxes.

**NORTH DAKOTA**—(1) Establish Long-Range Highway Planning Committee. (2) Increase gasoline tax and eliminate refund on present one-cent of gasoline tax now going to counties. (3) Revision of traffic and safety laws in conformance with recommendations of Uniform Code. (4) Revise size and weight laws in Conformance with AASHO recommendations. (5) \$4 million General Fund appropriation to highways. (6) Strengthen motor vehicle reciprocity law. (7) Reorganize State Departments. (8) Revision of motor fuel tax law to tighten refund provisions. (9) Increase local sharing of highway user taxes for cities. (10) Provide chauffeur's license law.

**OHIO**—(1) Repeal 1949 legislation authorizing creation of toll-road authority and turnpike study. (2) Reduce axle load limits to 18,000 lbs. (3) Increase penal-

(TURN TO PAGE 172, PLEASE)

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SAVE ENGINES**

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is LOW!  
tells when OIL  
is DIRTY!  
tells when to  
CHANGE that OIL  
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# ALCOA

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## Legislative Outlook . . .

Continued from Page 168

ties for overloading. (4) Increase number of men on State Highway Traffic Patrol Force. (5) Increase motor fuel taxes. (6) Recommendations from State Highway Study Committee are anticipated with regard to: (a) Highway, road and street classification; (b) Highway Department administration; (c) Highway fiscal practices; (d) Motor fuel taxes and license fees. (7) Require use of local materials

in highway and road construction. (8) Revision of highway laws section of motor vehicle laws to conform more closely with Uniform Code. (9) Addition of security provisions to financial responsibility act. (10) Establish commission form of state highway administration. (11) Establish state-wide motor vehicle inspection. (12) Increase salaries of county engineers. (13) Reduce license fees for farm trucks. (14) Exempt movement of farm machinery from present vehicle size and weight requirements. (15) Provide six-year term and increased salary for Director of Highways. (16) Permit Director of Highways to make contracts with professional engineering firms. (17)

Return of some of state highway mileage to county jurisdiction. (18) Prevent sale of gasoline at below-cost prices. (19) Require mud splash guards on trucks.

**OKLAHOMA**—(1) Proposal to allow cities and towns to vote new revenue measures. (2) Maintain present 6½-cent state tax on gasoline. (3) Re-enactment of 1-cent increase in state gasoline tax levied in 1949 for county roads. (4) Additional \$18 million requested for roads in 1951 by State Highway Commission. (5) Continue present 60,000-lb. gross load for trucks, but allow 13½-ft. height for trucks hauling hay. (6) Proposal to make liable the shipper who knowingly sends an overload on trucks. (7) Study information dealing with "speed traps" and recommendation for traffic control on state and interstate highways.

**OREGON**—(1) Size and weight revision along AASHO standards. (2) Highway bond issue. (3) Revision of ton-mile tax. (4) Continuation of Interim Highway Study Committee.

**PENNSYLVANIA**—(1) Increased truck-weights. (2) Approval of report by Highway Planning Commission. (3) Authorizing the establishment of toll roads to feed into turnpike. (4) Reduce truck weights to 18,000-lb. axle weight. (5) Reduce speed limit on turnpike. (6) Make last 2-cent gas tax increase permanent (total 5 cents. (7) Uniform laws legislation.

**RHODE ISLAND**—(1) Gasoline tax increase. (2) Seven-year road improvement program. (3) Efforts to cut down diversion. (4) Report by Interim Commission on a certificate of title, compulsory inspection and financial responsibility law. (5) Funds for personnel to enforce existing state size and weight laws

**SOUTH CAROLINA**—(1) Constitutional amendment against diversion. (2) Continuation of one-cent additional gasoline tax passed at last session, for a period of four years. (3) Motor vehicle title law. (4) Reduction in present truck sizes and weights law to conform with surrounding states.

**SOUTH DAKOTA**—(1) Increase of 1 or 2 cents in gasoline tax. (2) Revision of size and weight laws in conformity with AASHO recommendations (3) Adoption of driver's license and safety responsibility law. (4) Certificate of title law. (5) Recoup \$3 million a year for highways from \$14,800,000 diverted to non-highway purpose in past years. (6) Increase in motor vehicle compensation fees.

**TENNESSEE**—(1) Legislation correcting Certificate of Title Law passed in 1949. (2) Change in Financial Responsibility Act to strengthen enforcement provisions. (3) Changes in rules of the road to bring them into conformity with Act V of Uniform Code. (4) Heavier fines for overloading. (5) Increasing height limits for automobile transporters. (6) Authorizing establishment of toll roads. (7) Maximum speed limit.

**TEXAS**—(1) Increase of 1½ to 2 cents per gallon in gasoline tax for rural roads. (2) Graduated scale increase in regis-

(TURN TO PAGE 174, PLEASE)

**AGAIN-**



**LEADS**

**THE FIELD**



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SERVICE DIVISION HEADQUARTERS  
HOLLAND, MICHIGAN



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Run Quiet . . . and Save On Gas and Oil!**

You can't keep a piston quiet if it is fitted loosely in the bore to allow for expansion. Its skirt collapses it loses its fit. Nelson Bohnalite Autothermic Pistons are the proven solution to both problems, because they employ steel struts, paralleled by aluminum, that act as automatic thermostats to control piston fit, and maintain the same clearance—hot or cold!

When you put famous Nelson Bohnalite Autothermic Pistons in an engine, you provide your customer with the pistons scientifically designed for unequalled quietness, strength, long life and fuel economy . . . the pistons that show no loss of skirt diameter in long tests of 50,000 miles and up . . . the pistons conclusively proven in actual use by automotive manufacturers!

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-  **Valve Springs**
-  **Rod Dippers**
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-  **Bolts**
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Kester Radiator Solder, Flux-Core, a specialized solder with a higher tin content (50%) and super activated flux, is now available to the trade. The finest solder made for fast, quality radiator work.

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SOLDER**



The Mechanics Standard since 1899

## Legislative Outlook . . .

Continued from Page 172

tration fees. (3) Increase size and weight limits.

**UTAH**—(1) Increase of 2 cents in state gasoline tax. (2) Increase in license plate fees for trucks. (3) Constitutional amendment to prohibit diversion. (4) Reciprocity. (5) State aid to municipalities and counties to come from gasoline tax revenues instead of license plate funds. (6) Further study by Long-Range Planning Committee to determine whether or not large trucks are paying fair share of road use taxes.

**VERMONT**—(1) Good Roads Amendment. (2) Gasoline tax increase. (3) Ten-year local rural roads improvement plan. (4) Limitations on reciprocity.

**WASHINGTON**—(1) Increase penalties for violation of size and weight limits. (2) Increase in truck registration fees. (3) Highway Department reorganization. (4) Highway bond issue. (5) Limited access highway act revision. (6) Continuation of Interim Highway Study Committee.

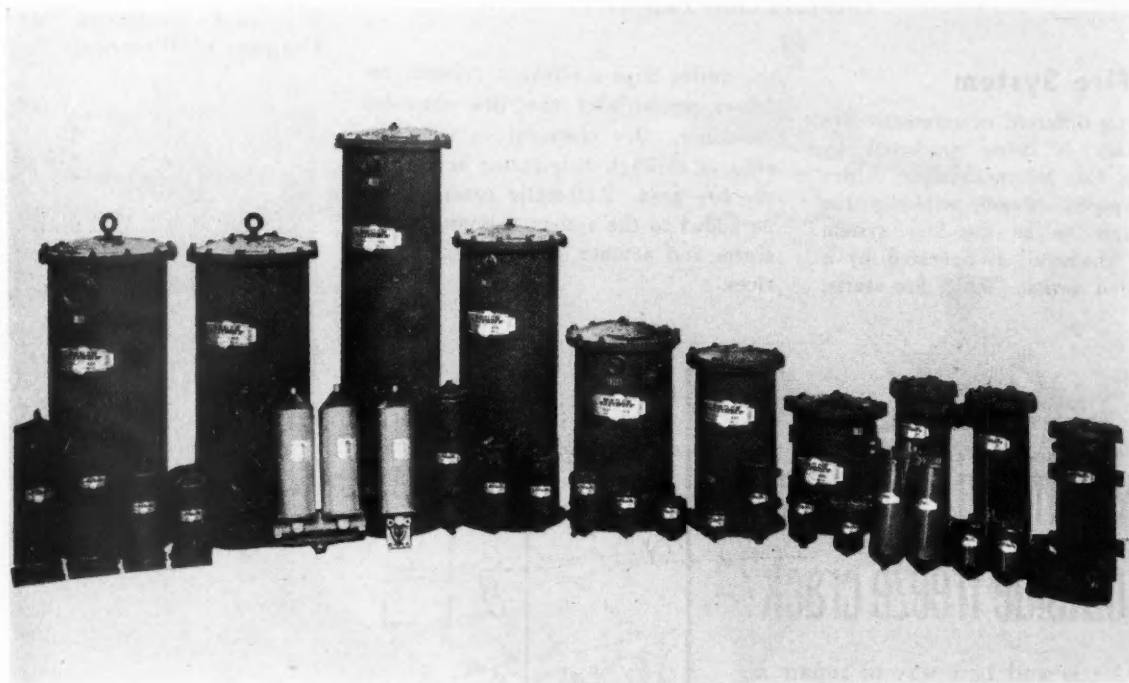
**WEST VIRGINIA**—(1) Changes in license fees schedule (increase on larger vehicles and reduction on several types of smaller vehicles.) (2) Adoption of recommendations on Uniform Motor Vehicle Law comparison. (3) Restriction of operation of heavy vehicles over secondary roads during fall and spring. (4) Highway planning study.

**WISCONSIN**—(1) Elimination of ton-mile tax and equalization of truck license fees. (2) Increase in gasoline taxes. (3) Increase in commercial vehicle registration fees. (4) Eliminate truck license reciprocity. (5) Amend "Rules of the Road" section of motor vehicle laws to conform with Uniform Code. (6) Increase penalties for overloading. (7) Reclassification of highways. (8) Reimposition of local personal property taxes on motor vehicles. (9) Reorganization of Motor Vehicle Department. (10) Revise county allocations of state highway funds. (11) Increase size of State Traffic Patrol (12) Require statewide motor vehicle inspection. (13) Increase minimum farm truck license fees to equal passenger car license fees. (14) Reduce axle load limits to 18,000 lbs. (15) Establish budget review for highway commission revolving funds, with additional control to governor and legislature.

**WYOMING**—(1) Amendment to prohibit diversion of highway funds. (2) Increase in size and weight limits to conform with the limits now being used by the State of Utah. (3) Refund of state highway taxes on gasoline for agricultural purposes off the highway. (4) Enabling act to legalize parking meters and dedicate the revenues to off-street parking. (5) Act I of the Uniform Code. (6) Legislation to create a separate office of the Motor Vehicle Department Director.

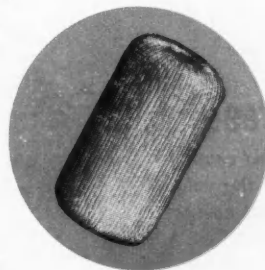
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Please resume reading page 58



## WINSLOW has the *RIGHT FILTER* for **YOUR ENGINE**

You know from your own experience that the amount of fuel or lubricating oil used by one engine—and the rate at which it flows—is probably not the same as in another engine of a different size or power rating. Thus, when you want to protect your fuels and lubricants from dirt, you must have *the right size filter for your engine*. Winslow not only makes a filter of the size you need, but Winslow engineers are ready and willing to recommend that right size filter from the more than 100 models made by this pioneer manufacturer.



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### **WINSLOW FILTERS**

W-511

**Winslow Engineering Company 4069 Hollis Street • Oakland 8, California**

## New Product Descriptions . . .

Continued from Page 78

### P129. Fire System

Something different in automatic fire extinguishers is being marketed by Ansul Mfg. Co., Marinette, Wis. A dry chemical piped system, said by the manufacturer to be the first system using dry chemical, is operated by a heat-actuated device. When fire starts,

the device trips a nitrogen cylinder release, pressurizing the dry chemical container. Dry chemical is then discharged through distribution heads into the fire area. Automatic controls can be added to the system to sound a fire alarm and actuate other protective devices.

## How should you repair an outside freeze crack?\*

The latest and best way to repair an outside freeze crack above the oil line in an over-head valve engine is clearly demonstrated in the new Tincher CRACK REPAIR Manual. This and other repairs are outlined step by step and illustrated by drawings like those shown here in reduced size. With this Manual any competent mechanic can readily become a crack repair expert. With this Manual any shop is prepared to make the Tincher Electro-Mechanical Process a highly profitable source of income.

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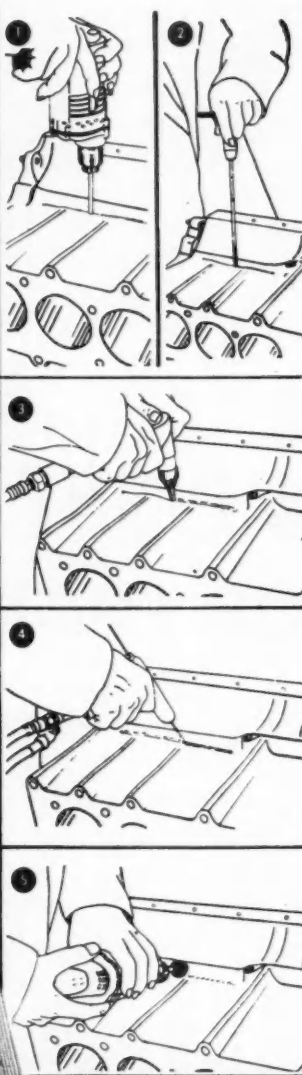
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Wholly owned subsidiary of  
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90% of all common cracks in engine blocks and heads can be repaired simply by circulating Tincher Alloy Seal as instructed on the can.

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### P130. Arc Welder

Marketing of a new series of industrial A. C. Arc Welders has been announced by Marquette Manufacturing Company of Minneapolis.



The new industrial welders are available in three sizes—200, 300, and 400 ampere capacities. One construction feature is the use of Hipersil Steel transformer cores, which provide 1/3 greater flux-carrying capacity, reducing power consumption and operating costs.

### Late Product Flashes

**FLASHER DIRECTION SIGNAL** is being made by Yankee Metal Products Corp., Norwalk, Conn. The signal comes in a conversion kit complete with switch, flasher, sockets, and bulbs.

**SPEEDOMETER LOCK** by Kontra's, Inc., Oshkosh, Wis., clamped to each end of the speedometer cable to prevent theft of mileage by users of auto and truck rentals, etc.

**POURING FRAME** for carboys that prevents liquids from spilling or spurting is being made by General Scientific Equipment Co., Philadelphia.

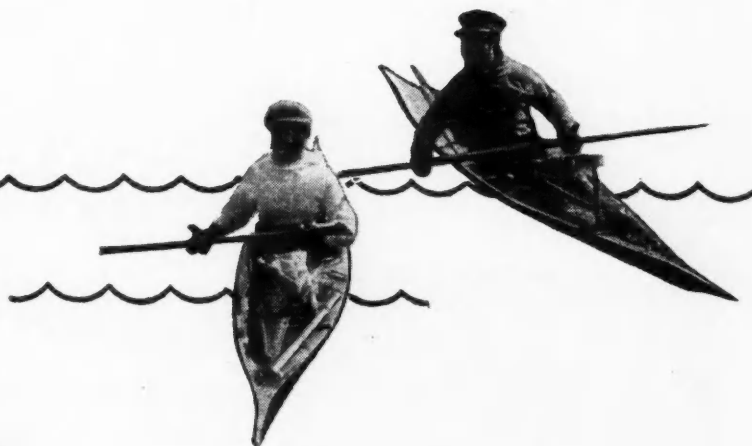
**RADIATOR SEAL**, made by Lusco, Inc., Cleveland, for all types of cooling system leaks.

**MOTOR SUPPORT**, attached to all two-post lifts has been introduced by Weaver Mfg. Co., Springfield, Ill., for lifting motor units for replacement of rear motor mountings.

**HEAT RESISTANT ALUMINUM PAINT** is being made by Speco, Inc., Cleveland, that will withstand temperatures up to 1700 degrees Fahrenheit.



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Spicer assures exceptionally long wear-life and trouble-free service through adequate needle bearings...close-fitting, free-sliding splines...and true-running tubular shafts.

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# Sawyer Denies Shipments to Red China

In a recent address before the New England Shoe and Leather Assn., Secretary of Commerce Charles Sawyer vehemently denied recent allegations that the U. S. negligently permitted

shipments of strategic war materials to Red China. "I wish to give the public a few facts," the Secretary said:

"In 1948, we exported 486,569 barrels of aviation fuel to China; in 1949,

exports declined to 91,497 barrels; and since January of 1950, we have licensed none at all.

"In 1948, we exported 561,014 barrels of automotive fuel to China; in 1949, exports declined to 32,521 barrels; and we have licensed none at all since January 1950.

"In 1948, we exported to China 147,719 barrels of kerosene; in 1949, exports to China were only 883 barrels, and we have licensed none at all since January 1950.

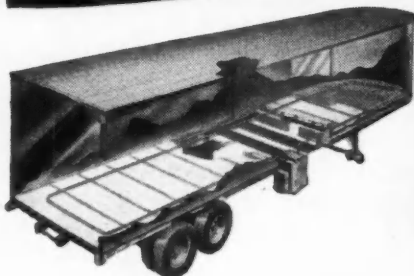
"In 1948, we exported to China 470,286 barrels of diesel, heating and other fuel oils; these exports declined in 1949 to 33,337 barrels; and we have licensed none at all since January 1950.

"I have mentioned stories about exports of copper. There were no exports of copper during the year 1950 from the United States. In February of last year, OIT discovered that there had been a transshipment of copper from Tokyo, by way of New York and other ports, on the way around the world to China. We promptly cabled General MacArthur's staff and worked out arrangements by which they would apply the same type and extent of control which we were applying in this country. No matter what you may see or hear, there has been no copper shipped, even by this method, from Japan to China since that date.

"You have heard statements about steel and tin waste items. These were 'rejects' of such low grade that the interagency committee responsible for deciding which exports are strategic saw no reason to give them such a classification. Incidentally, this interagency committee includes representatives of the defense agencies. It is these shipments which have been referred to when you read or heard of shipments of so-called 'war-potential' items."

## HERE'S REAL PROTECTION FOR ALL CARGOES AGAINST FREEZE-UPS

**LUMINATOR**  
*Radiant floor*  
**CARGO HEATER**



**MAINTAINS EVEN TEMPERATURES FROM BOTTOM TO TOP OF LOAD**

Heater warms floor by circulating warm liquid through pipes in floor. Danger of freezing at the floor level is eliminated.

### COMPLIES WITH LATEST ICC ORDER which prohibits exhausting products of combustion inside vehicle

Heater mounted under vehicle exhausts fumes into atmosphere • Warm floor insures uniform temperatures from bottom to top of load • Prevents freezing of condensate • No fumes in cargo space to taint or accelerate ripening of cargo • Large medium temperature floor area eliminates overheating of lading near source of heat • No carbon monoxide fumes inside cargo space to endanger lives of personnel • Does not occupy valuable cargo space • No electrical connections required • Eliminates fire hazards in cargo space • No obstructions in cargo space • Easy to inspect operation of heater • Thermostatically controlled • Installations engineered for all types trailers and trucks • Economical operation.

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### Better Luck Next Time

*The young ignition specialist and his wife already had five children, and mother had just "found" another at the hospital. All were going to see the latest, but hospital rules forbade the youngest as a visitor. The oldest said, "Don't cry, honey, you can go next year."*

# Gemmer Easy Steering Lowers Costs

**by Cutting Maintenance  
... and Speeding Schedules**

Easy maneuverability of Gemmer steered vehicles helps to make faster schedules through traffic, in and out of parking places, docks and narrow entries. The lessened steering load substantially reduces driver fatigue. No letdown the latter part of the day. Increased mileage per vehicle makes for important reduction in operating as well as capital costs.

Gemmer Easy Steering cuts maintenance. Having little or none of its own, it contributes to reduction of over-all vehicle maintenance. Easy maneuverability plus alert, untired drivers help hold down vehicle damage costs.

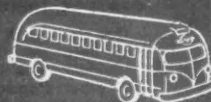
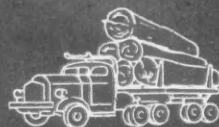
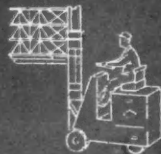
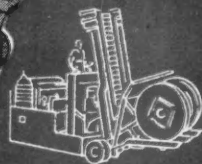
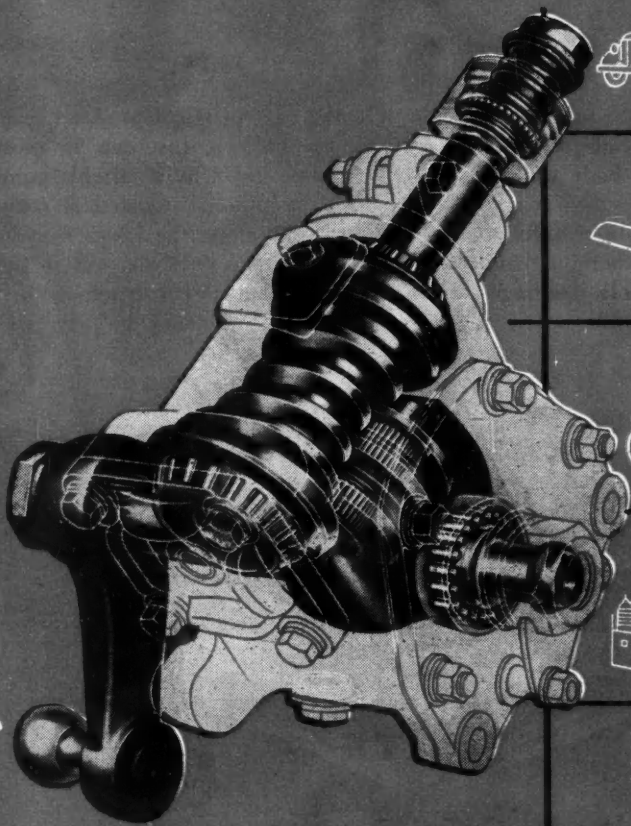
Gemmer Easy Steering is always responsive, firm, with no rubbery feeling or wander. Rolling gear tooth sector, plenty of antifriction bearings, almost eliminate friction. Strength is abundant and there is plenty of power for parking.

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Gears for 43 Years*



# SAE Annual Meeting . . .

Continued from Page 70

of condensation due to humidity and temperature differentials are certain to collect on interior body walls, and more particularly, on the inner wall wherein the temperature differential is greatest and it is, therefore, vitally important that suitable drainage be provided.

In the case of single walls of 3-in. thickness or less, this can in most cases be provided by a suitable number of "weep-holes" located at regular intervals along the lower side or bottom of the side walls, but in the case of double wall construction, such as is usually necessary in zero tem-

perature type bodies, it is also advisable to provide baffle plates that will direct the inner wall condensation into the interior of the body.

Where loads are relatively dry there are many cases where a wood top floor and plywood, or its compounded equivalent, are quite acceptable for sidewalls, but in those cases where excessively wet loads are handled or a pre-loading cleansing with either steam or hot water under pressure are compulsory, there is no substitution for a fully metallized interior, Mr. Drew stated.

There are numerous types of construction by which metallization can be accomplished, and these range all the way from thin metal sheets applied over plywood for backing purposes up to and including formed or corrugated alloy steel or aluminum sheets that have sufficient inherent strength to render any additional backing unnecessary, and since the last mentioned usually offers attractive weight reduction possibilities they are steadily gaining in favor.

The matter of metallized floors is one that has called for a maximum amount of engineering ingenuity to find satisfactory solutions. The speaker continued. The problem is not particularly difficult where ordinary carry-in types of loads permit the use of simple, light, wooden duct-boards, but where hand trucks or perhaps even mechanical or electrically operated lift trucks are involved engineers have been severely pressed to come up with a generally satisfactory design.

At the present moment it would appear that light metal extrusions of either magnesium, aluminum or pre-formed stainless steel, developed with a contour that provides longitudinal troughs for the disposal of floor water accumulations as well as automatically providing long-wearing top surfaces and longitudinal under-load air circulating channels, are finding rapidly increasing acceptance among the most experienced operators.

## Ignition Developments

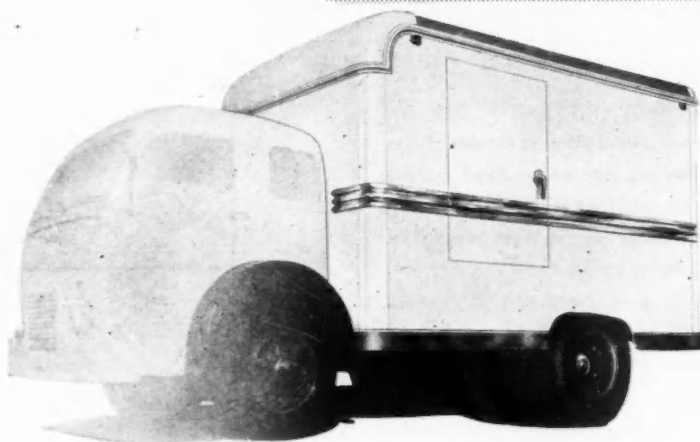
**M**ETHODS of waterproofing ignition systems were described by H. L. Hartzell and B. H. Short, of Delco-Remy Div., General Motors Corp. They recommended covering cables with neoprene; installing tightly-fitting durable nipples on distribu-

(TURN TO PAGE 182, PLEASE)

for To-day  
and To-morrow

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**TRUCK BODY DESIGNERS—BUILDERS—AND BUYERS**  
Are you taking advantage of the HART COMPLETE LINE?

Coupled with your designing and building know-how HART parts can help greatly to give your fleet eye-catching individuality—the "Special" look achieved from HART corner posts, roof caps, rub rails and other standard HART parts that make it YOUR fleet . . . And HART parts costs are known in advance. Yes, the complete service is another reason why the HART way is the SMART way.

The 1951 Hart Custom Truck Body Engineer's Manual will soon be ready. Reserve your copy now.

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## Compare your operation with these tests!

The man in the photograph, above, holding a report is Mr. R. H. Gettig, Vice-president of R. Beatty Motor Express, Inc., Washington, Pa.

You see him here discussing his operation with Mr. L. Collier, Supt. of Maintenance, and a Gulf Sales Engineer.

This firm operates 146 units—54 gasoline tractors, 9 Diesel tractors, and 83 semi-trailers. They use Gulfube Motor Oil H.D.

### What they found out

To test the performance of Gulfube Motor Oil H.D., they kept an accurate check on a factory-reconditioned engine they had installed on a 1942 GMC 650 Model Truck.

*They found the engine operated 140,000 miles with this quality motor oil before reringing was*

*necessary. They were impressed.*

Then they made another test with Gulfube Motor Oil H.D. that we believe will interest you. They ran a GMC 1947 Model ACR 720 Engine in an over-the-road tractor 240,000 miles before it was necessary to remove the head or pan!

If your operation does not compare favorably, we urge you to investigate the merits of Gulfube Motor Oil H.D. It is an outstanding heavy-duty type oil. It not only provides proper lubrication, but keeps engines clean as well. A high-quality detergent motor oil, it insures better compression and proper oil control.

Why not call in a Gulf Sales Engineer and find out how Gulfube Motor Oil H.D. can help your operation? Just contact your nearest Gulf Office. We think you'll be glad you did.



## SAE Annual Meeting . . .

Continued from Page 180

tor caps, coil output terminals, and spark plugs; providing adequate distributor ventilation; and replacing distributor caps and rotors with units whose contouring minimizes the effect of moisture.

L. H. Middleton and M. F. Peters, of Electric Auto-Lite Co., said the new engines, and particularly those with

overhead valves, necessitate a thorough study of ignition systems with the idea of increasing ignition efficiency and solving the present problem of primary current limitations imposed by the high-speed primary contact-breaker mechanism. The modern coil produces more electrical energy than is required to discharge the spark, they explained, and this energy well could be utilized to charge the secondary circuit to a higher voltage, preferably by prolonging the time of voltage rise. They

pointed out that if voltage rise is too rapid, 60 per cent of the energy is wasted through the ground, whereas if the voltage rise is retarded, by adjustment, 97 per cent will be available to charge the secondary circuit to the breakdown voltage of the spark plug.

Proposal for replacement of present high-tension ignition systems by a new low-tension capacity system was voiced by W. Beye Smits and P. F. H. MacLaine Pont, of Smitsvank N. V. Research Laboratory. With the Smitsvank condenser-discharge low-tension system they asserted, it will be possible to utilize a universal spark plug, the performance of which actually will improve with fouling. They said they would replace the present distributor, with its delicate breaker-points which frequently need adjustment, by a device in which a rotating arm touches fixed contacts, permitting extremely accurate timing, even at low speeds, and virtually eliminating the deleterious effects of atmospheric changes.

Not only will this system permit the same type of spark plug universally to be used in every internal-combustion engine, they added, but it will be insensitive to changes in the type of fuel consumed, will ignite even bituminous fuels such as tar, and will not be affected by impurities or soot. They said the spark plugs cannot be short-circuited, even by applying oil and graphite powder, and that resistance in the form of fouling serves to increase the size of the spark, which really is in the form of a small flame. Further, they said the system will permit any engine to operate more smoothly, especially at low speeds, and will be impervious to the weather.

### Fuel Improvements

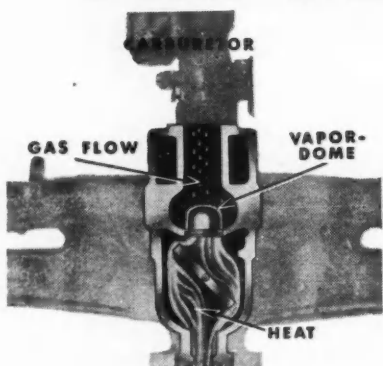
**KNOCKING** tendencies of gasoline largely have been overcome, petroleum engineers reported, but wartime fuels are likely to create engine-operating difficulties in the way of vapor-locking, fuel tank and carburetor evaporation losses, and extended warming-up periods. Indications are, it was said, that military requirements for motor fuels will be such as to necessitate the marketing of motor fuels having lower vapor pressure characteristics, depending upon whether the military needs the greater proportion of its fuel supplies (TURN TO PAGE 184, PLEASE)

**WHY WAIT**  
when delay is costing you money?

**REDUCE  
MAINTENANCE  
COSTS!**

Get Top Efficiency  
Out of Your Engine  
with the new

**VAPOR-DOME\***

- Improved Mileage—approx. 10% gas savings
  - Longer Life For Valves
- money savings in:**
- Keeping New Carburetor In Top Form
  - Installed in 20 Minutes

**FAILURE IN PERFORMANCE IS NEARLY ALWAYS CAUSED BY IMPROPER VAPORIZATION.**

The Vapor-Dome will:

★ reduce carbon formations which accumulate around the vaporizing chamber of the intake manifold, preventing proper vaporization.

★ reduce crankcase dilution (which in time can cause serious damage)—give faster warm-up with less choking during cold weather—prevent rich mixture—stalling at stops.

★ provide proper vaporization of gasoline—better acceleration—more power. Gives Longer Life To New Cars—New Life To Used Cars!

It's an uncertain market these days, so to insure your car for longer life, ask your dealer about the new, scientific wonder, VAPOR-DOME, that

**Makes Your Motor Live Longer!**

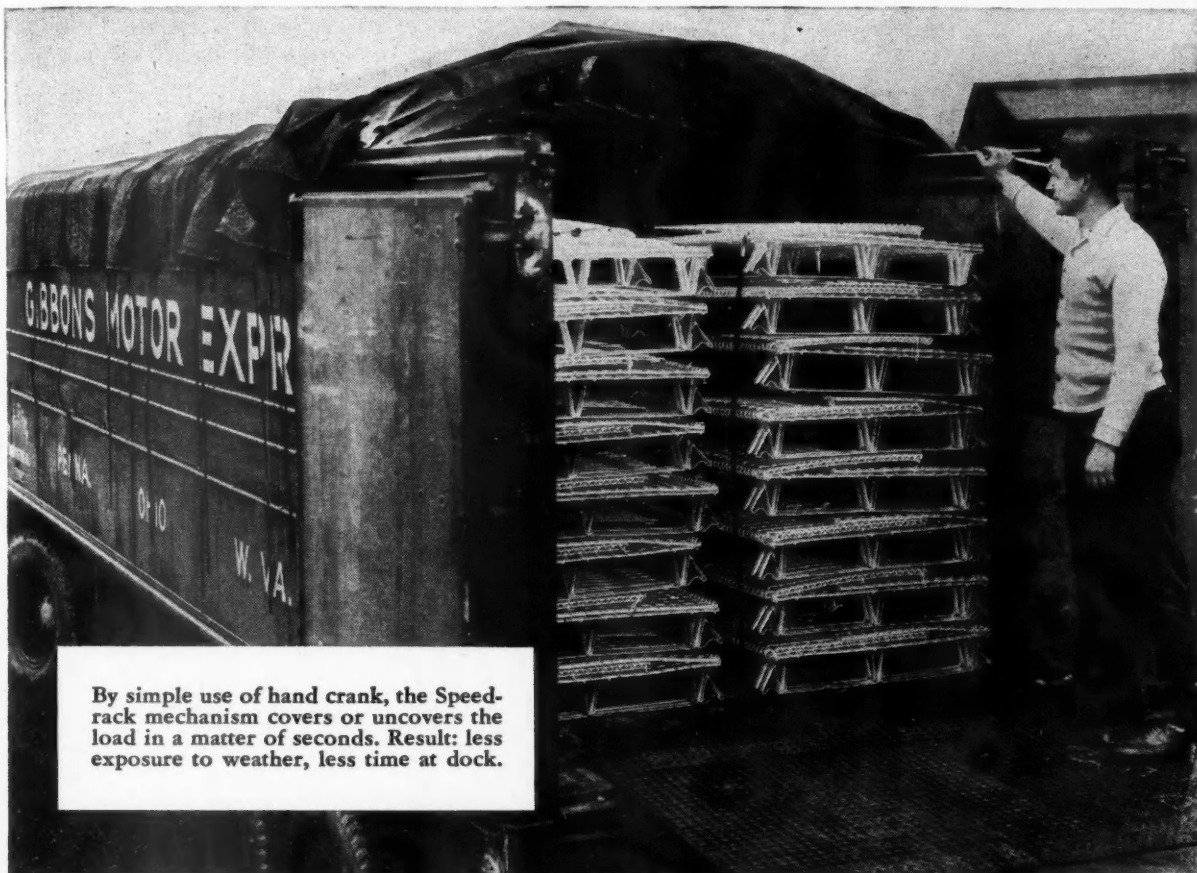
FOR FURTHER INFORMATION WRITE FOR LITERATURE



**Manifold hot spot corporation**

612 N. MICHIGAN SALES OFFICE C-2 CHICAGO 11, ILLINOIS





By simple use of hand crank, the Speedrack mechanism covers or uncovers the load in a matter of seconds. Result: less exposure to weather, less time at dock.

## *Here's why Gibbons insists upon **SPEED-RACK***

Mr. E. L. Gibbons, owner of the highly successful Gibbons Motor Express of Washington, Pennsylvania, has this to say about Pittsburgh Speedracks:

*"I wouldn't buy an open-top trailer without a Speedrack any more than I would operate one on the highway with solid rubber tires. In my experience, Speedracks pay for themselves in two years in tarp repairs alone. The big savings I get in faster and better loading are pure gravy all along the line."*

Gibbons is but one of many trucking concerns that have standardized on Speedracks because they consider them a nominal investment for a high profit in added loading speed, added safety and better customer relations. For the name of your nearest Speedrack dealer, write to Pittsburgh Steel Products Company today.



Complete lack of overhead obstruction makes loading easier with Speedrack. (The load in this instance is cargo-tainers — another well-known product by Pittsburgh Steel Products Co.)

# **Pittsburgh**

# **SPEED-RACK**

**Pittsburgh Steel Products Company**  
A Subsidiary of Pittsburgh Steel Company  
Grant Building Pittsburgh 30, Pa.

## SAE Annual Meeting . . .

Continued from Page 182

for reciprocating or turbine powerplants. The effect was described as roughly the same as asking motor vehicle operators to use winter grades of gasoline in summer. Desirable engine design changes were listed, in order of importance, as shielding fuel-system components from heat, using pressure-type gasoline tanks and

caps, and installing fuel pumps at, near, or in fuel tanks.

W. M. Holaday and D. P. Heath, of Socony-Vacuum Laboratories, Inc., explained that the petroleum industry is increasing the capacity of its catalytic cracking facilities and also is installing catalytic reforming equipment to expand the production of high-octane anti-knock motor fuels. At the same time the industry is taking more natural gasoline and other volatile products from natural gas and oil fields and from pipe lines,

with the overall result of a trend toward increased vapor pressure in motor fuel. The situation further is complicated by the necessity of producing fuels for the reciprocating engines of aircraft and of producing butadiene for synthetic rubbers. Resultingly, some gasolines may cause difficulties when engines are started cold.

It was suggested that engine designs be altered now so that carbureters, fuel pumps, and fuel tanks are shielded from heat to reduce evaporation losses. Engine design changes involve reduction of carburetor float-bowl temperatures, use of cooler intake manifolds, hot-spot heat applications to accelerate warm-ups, improving heat-riser valves to prevent sticking, installing pressure caps on gasoline tanks, and placing fuel pumps near, at, or in fuel tanks.

### Better Lubricants for Diesels

THE meeting learned from a technical paper prepared jointly by W. G. Brown and F. E. Kronenberg, both of Caterpillar Tractor Co., and F. A. M. Buck, J. A. Edgar, and J. M. Plantfeber, all of Shell Oil Co., that use of the new Series 2 lubricating oils affords definite benefits in diesel engine operation. Among such benefits they listed the extension of drain-oil periods to 600 hours from 240, and an increase to 96 per cent from 55 per cent in the load factor, with some reduction in piston deposits. They said that not only are drain-oil periods greatly extended, with resulting economic savings, but that reduced wear and greater cleanliness presage prolonged engine life.


Engineering method of evaluating the service life of operating automotive parts so that adequate strength may be considered during early stages of design and manufacture was outlined by Robert Schilling, of Research Laboratories Div., General Motors Corp. Mr. Schilling said that while automotive engineers have been accused of designing parts largely by rule-of-thumb, sound reasoning based upon experience really governs such design. He pointed out that it borders upon the impossible either to visualize or to estimate all the operational strains to which parts may be subjected, either in normal service, abusive driving, or extremes of road conditions.

END

Please resume reading page 72

*"The world rides on Trainor Springs"*

OVER  
**50**  
YEARS OF  
WORLD-WIDE  
*Service*




**TRAINOR**

Over 50 years of world-wide service is your guarantee of highest quality and dependability. Over 50 years of laboratory research and field tests back Trainor Helper Springs and Build-Up Kits, recognized for highest quality by fleet owners everywhere.

Trainor Helper Springs and Build-Up Kits are engineered to give your trucks increased carrying capacity and protection against abuse due to overloading. They are individually load tested to give greater than required capacity. Trainor Helper Springs can be quickly installed on all  $\frac{1}{2}$ ,  $\frac{3}{4}$  and 1 ton trucks. Build-Up Kits on  $1\frac{1}{2}$  to 3 ton trucks.

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CINCINNATI  
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SPRING COMPANY**  
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**Machines are Muscles  
Keep Them on Their Toes**

**FOR PERFECT PERFORMANCE**

**AND IMPROVED**

**BEARING MAINTENANCE**

**see your "BEARING SPECIALIST"**

**P**roper bearing maintenance will greatly reduce the present bearing replacement costs of the average company.

Your "Bearing Specialist" can advise you of maintenance techniques that will eliminate heavy and unnecessary expense, except where failure is due to fatigue or conditions resulting from fatigue. His proper recommendations on methods of removal, replacement

and installation will give you additional bearing life and save you time and money. As an experienced AFBDA member he will meet with speed and knowledge your most urgent bearing emergency through the skilled technicians and complete stocks that he always has available for your service. It may be he is servicing you now but if he isn't, now is the time to get acquainted.



**NEW!** Free to users of Anti-Friction Bearings! The first issue of the "AFBDA BEARING MAINTENANCE REPORT" is ready for release. This digest of all the latest information available on the economical maintenance and service of anti-friction bearings will appear at regular intervals and will be mailed to any company executives requesting it on company letterhead. A sturdy cover file in which succeeding issues can be compiled will be mailed with this first issue.

Our publishing purpose is to assemble, for the first time, all improved practices in bearing maintenance, and to constantly add every new maintenance development. **WRITE FOR IT TODAY!**

**THE ANTI-FRICTION BEARING DISTRIBUTORS ASSOCIATION**  
1900 EUCLID AVENUE • CLEVELAND 15, OHIO

**FREE!!!**



# Washington Runaround

Continued from Page 37

be included in the new revenue bill. Additional excises are also being considered.

At the same time, there is considerable talk of a sales tax at the retail level, but many congressmen are extremely shy about this idea.

A manufacturers' sales tax is cur-

rently regarded as the best way to obtain the largest part of the needed revenue. Members of both political parties are known to favor such a plan, and many feel that this potential tax source is the only field remaining where large revenue still can be obtained.

Increases in existing personal and

corporate tax rates, in addition to the new levies, can be regarded as a certainty.

## Railroads Ask Rate Increase

A general freight rate increase of 6 pct has been requested by the railroads in a petition filed with the ICC. The boost in rates is estimated to produce \$470 million in new revenues, the amount which the roads say their costs have increased since the last rate boost in 1949.

Coal and certain other commodities and services do not take the general 6 pct increase. A specific increase of 18c a net ton or 20c per gross ton is proposed for coal. But citing trucking competition, the Nickel Plate Railroad will not increase rates on bituminous coal picked up and delivered within the state of Ohio.

The new rates would also apply to line haul rates on shipments of truck bodies, trailers, or semi-trailers on flat cars. Joint rates with truck lines are also ordered, but no increase would be paid nor allowed by the rail carriers for drayage performed by shippers or receivers.

Freight forwarders have also asked ICC for similar treatment.

## Supreme Court Gets Private Carrier Case

The Supreme Court now has before it the determination of what constitutes "private carriage"—the widely upheld "primary business" test of whether some compensation is received for transportation. At issue are the celebrated and now combined Lenoir Chair Co., and Schenley Distillers Corp., cases. The Federal District Court at Richmond, Va., unanimously upheld the ICC's "primary business" test and ruled that these firms are private carriers. Common carrier interests have asked the Supreme Court to reverse the Richmond decision. The ICC and private organizations have asked the Court to affirm the lower court's decision. . .

## PIE Appeals ICC Decision

Pacific Intermountain Express has asked the ICC to reconsider its decision of last Nov. 6, denying PIE the right to acquire Keeshin Freight Lines, Inc. The merger would establish transcontinental motor freight service for the first time. PIE charges that it has not been given an opportunity to prove its case and accuses the ICC of banning the merger because "it is alarmed for the rails" and not because of any facts presented by PIE.

END

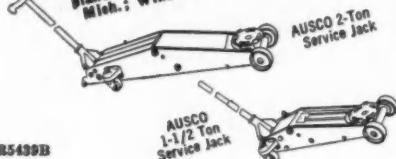
Please resume reading page 41

COMMERCIAL CAR JOURNAL, February, 1951



## Other AUSCO Hydraulic Service Jacks

Including the sturdy-built 1½-ton model and heavy-duty 2-ton Jack, are shown in the illustrated 1951 AUSCO Catalog. This complete showing of all AUSCO hydraulic and mechanical jacks is available without cost or obligation from AUTO SPECIALTIES MFG. CO., DEPT. CC-2, ST. JOSEPH, MICH. Other plants: Benton Harbor and Hartford, Mich.; Windsor, Ontario, Canada.



B5499B

● Maximum lifting strength at minimum weight—that's BOSCO, the new AUSCO Service Jack. There's MANEUVERABILITY "PLUS" in its lively ball-bearing swivel wheels and easy-to-handle lightweight chassis. There's OVERALL STRENGTH in its all-steel frame and unbreakable malleable iron lifting arm. There's EXTRA SAFETY in its overall safety margin and overload valve. There's SMOOTH POWER in its positive pump action and removable power unit. Yet, you get all this "heavy jack" performance from a 68 lbs. lightweight which is just a compact 24½" long! That means BOSCO helps you do your lifting jobs faster, simpler and with less effort! See this lightweight strong man at your AUSCO Jobber's soon.



MAKERS OF Hydraulic and Mechanical Jacks, including HYDRAULIC: Service and Axle Jacks, MECHANICAL: Friction and Ratchet Bumper Jacks; Saf-Lift Jacks, Steel Horses and Scissors Jacks.

IT'S  
HERE...

**WIXITE**

(PATENT PENDING)

**THE GREATEST FILTRANT  
DEVELOPMENT IN  
OIL FILTER HISTORY**

- A WIXITE Cartridge maintains a labyrinth of countless minute sludge traps which envelop the contaminants in the oil . . . not merely straining them on the surface.
- WIXITE is the most important development since oil filters were first conceived.
- WIX Replacement Cartridges containing WIXITE are available through your local jobber . . . NOW.



WIXITE is new . . . utterly new. Backed by years of research, cutting clean through old concepts of filtering efficiency . . . WIXITE opens an entirely new era in oil filtration. You will find spectacular performance in WIXITE . . . GREATER SLUDGE AND ABRASIVE REMOVAL . . . GREATER RATE OF FLOW . . . GREATER MILEAGE.

WIXITE makes filter dollars go farther . . . keeps engines protected from sludge and grit longer . . . postpones the need for cartridge change.

From the beginning of automotive oil filtration, cotton threads have been the most widely accepted and endorsed filtering medium. WIX has now improved upon the performance of cotton threads by blending a material which **ALLOWS THE UTILIZATION OF THE ENTIRE THREAD CONTENT.** This amazing new medium—WIXITE—properly blended and carefully packed by WIX, insures users of more than double the life expectancy formerly offered with **ANY** filtering medium. WIXITE Replacement Cartridges are available for Trucks, Buses and Passenger Cars. Write for the full story today.

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**ENGINEERED FILTRATION**



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he's free of concern . . .  
his trucks won't burn

Going home . . . relaxing after a day of high-gear'd activity is no trouble for this trucker! His mind's at ease about fire . . . thanks to the safety given his trucks, cargoes, terminals and garages by efficient, quick-acting C-O-TWO Fire Protection Equipment.

You too, can have this same peace of mind . . . this same positive protection from costly fires by installing complete, approved C-O-TWO Fire Protection Equipment. For instance, with a C-O-TWO Automatic Fire Protection System in a trailer, you have a 24 hour a day automatic fire watchman . . . whether under way or parked. Heat detectors on the ceiling quickly actuate the system . . . then clean, dry, non-damaging, non-conducting carbon dioxide gas is flooded into every nook and corner, extinguishing the fire in

seconds before it spreads and causes serious damage. After use, the carbon dioxide disappears without a trace . . . no water damage, no after fire mess.

C-O-TWO Portable Fire Extinguishers . . . either carbon dioxide type or dry chemical type . . . render fast, positive action for extinguishing fire during the incipient stage. C-O-TWO Portable Fire Extinguishers are designed to take abuse . . . rugged construction, no extra gadgets protruding or complicated operating parts . . . built to rigid specifications to assure you of lasting, efficient fire protection.

So, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today for complete free information . . . our experience is at your disposal.



## C-O-TWO FIRE EQUIPMENT COMPANY

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Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeeze-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers  
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems  
Built-In Smoke and Heat Fire Detecting Systems

## CCJ Reports . . .

Continued from Page 104

### ICC Help For Carriers

"As the defense program progresses, the amount of traffic which will require motor transportation will increase, forecasts the Interstate Commerce Commission in its 1950 annual report. "Motor carriers are now transporting quantities of traffic which almost absorb their capacity," says the Commission, "and in some areas the available facilities have been unable to move all traffic offered without some delays."

To cope with the situation, the field staff of the Bureau of Motor Carriers has organized industry committees, in those localities in which traffic congestion is prevalent, in an effort to deal with transportation problems on a local level and to advise headquarters in Washington of any problems which cannot be solved on a local level.

Foreseeing shortages of personnel and equipment caused by military demands, the Bureau plans to compensate for such deficiencies by fostering more efficient utilization of facilities and employee training programs.

The Bureau staff also will watch the vehicle and parts situation, in order to play an advisory part in the allocation of materials for motor transportation facilities.

### Report on Safety Rules

As CCJ goes to press, preparation of a detailed report containing the trucking industry's exceptions to new safety regulations proposed by the Interstate Commerce Commission's Bureau of Motor Carriers was under way at American Trucking Associations' headquarters, Washington, D. C.

Committee members went over the ICC-proposed regulations point by point. They directed that their decisions go into a report to be submitted to ATA's Executive Committee. Following Executive Committee action, the association will file exceptions to the ICC proposals some time prior to the March 31 deadline.

### Trucks For Forest Fires



Pennsylvania's department of forest and waters has placed into service 24 four-wheel drive Willys one ton trucks especially equipped for forest fire fighting, with fire-pump, water tanks, pumps and front end winches to meet any emergency. One unit has been assigned to each of the state's 24 forest districts.

(TURN TO PAGE 226, PLEASE)

**BECAUSE THEY ARE  
ALL ONE PIECE  
G-E "All-Glass"  
HEADLAMPS**

**DO NOT  
GROW  
DIM!**



**DIRT AND MOISTURE CAN'T GET IN  
TO REDUCE LIGHT OUTPUT**

**T**HE cutaway view above reveals one big reason why General Electric "All-Glass" headlamps do not grow dim. Lens and reflector are *one piece*, with filaments firmly anchored in the reflector, making the whole lamp one unit! Because it's a single unit, dirt and moisture can't get in to dull the reflector.

"All-Glass" headlamps give more light from the start. And they continue to give more. Tests show they average 99% as much light at end of life as when new. Result: safer, easier and more comfortable night driving.

**Here's how to play safe when you buy sealed beam headlamps for your fleet**

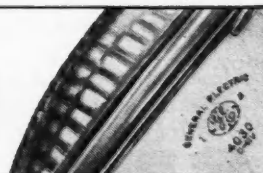


**1. FEEL THE SEAL**

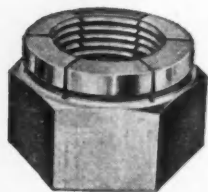
There is no seam where glass reflector and glass lens are fused into one piece. Dirt and moisture can't get in.

**2. SEE THE G-E**

It's on the back of the headlamp near the top. It's your assurance that your headlamps **WILL NOT GROW DIM.**



**GENERAL  ELECTRIC**

**FLEXLOC****SELF-LOCKING NUTS**

**STAY  
TIGHT  
AFTER  
171,360,000  
VIBRATIONS AT 4000  
CYCLES PER MINUTE...**

Plain nuts with lock washers loosened after only ONE HOUR of 4000-cycle-per-minute operation on the vibrator of a concrete block machine at the plant of the Bethayres Concrete Block Co., Bethayres, Pa.

When FLEXLOC Self-Locking Nuts were installed, they were still tight when the machine was torn down for rebuilding after 6 weeks operation—at 4000 C.P.M., 17 hours a day, 7 days a week!

If you have an application where nuts loosen or back off, try FLEXLOC, the one-piece, all-metal STOP- and LOCK-NUT "that won't work loose."

Send for Bulletin 619-A today.

**—SPS—**

STANDARD PRESSED STEEL CO.

JENKINTOWN 5, PENNSYLVANIA

## Fruehauf Safety Contest Develops Driving Rules

Appalled by the death in 1950 on the nation's highways of six times as many Americans as lost their lives in five months of fighting in Korea, truck drivers have come up with a set of "rules drivers live by, violators die by."

They set the rules down in a highway safety essay contest sponsored by Fruehauf Trailer Co. The drivers offer them in the hope they'll enable some of their fellow highway users to live to see the end of 1951:

Don't "tailgate"—drive so close to the car ahead, you can't stop if that car must, or so close that a car passing you can't get back into the right hand lane if danger suddenly appears.

Park all your problems—financial, domestic or any other type—at the curb when you pull away from the curb.

Drive defensively rather than offensively—assume always that the other driver is going to do something foolish, is about to disregard all safe-driving practices and ignore traffic regulations, and has his heart bent on risking his own neck AND yours.

Never debate the right-of-way—give it.

Remember that your car will do only as you bid—IF you are the master.

Never be too lazy to lift your foot from

the gas to the brake the instant you see any potential danger—it may BECOME A REAL DANGER.

Never plan in advance exactly how many miles you must cover in a given time—gear your driving to the highway and to traffic.

Don't "overdrive" your lights and brakes.

If you must stop on a highway, stop off of it.

Be ever willing to "go the second mile" in courtesy, remembering that you can LIVE by the three C's of safe driving—care, courtesy and common sense.

Accept traffic laws and regulations in the spirit in which they are intended—as aids, not harassments.

Don't try to keep up the pace set by a "horse" larger than you are driving.

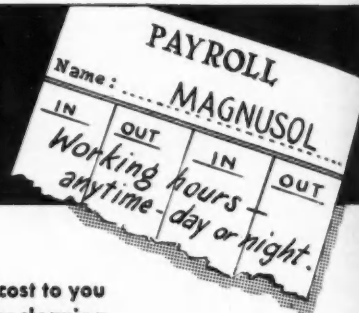
Be conscious of your vehicle's position on the highway, whether moving or parked.

Never fight sleep at the wheel—surrender to it OFF the road.

Know the condition of your car and its equipment—A-one equipment represents a start toward A-one safety.

Remember that PATIENCE will go a long way toward keeping everyone safe and alive on the highway, and remember, it may be your own life you are saving.

### MORE UNITS CLEANED AT LESS LABOR COST!



It's just like having an extra worker—at no cost to you—when you put Magnusol on your payroll for cleaning engines, chassis, wheels or any other greasy, oily, dirty surfaces.

With Magnusol, you cut labor costs for cleaning to a minimum. Manual labor is needed only to spray the solution on—and later rinse it off. While the Magnusol solution is penetrating and loosening the greasy dirt (15 to 20 minutes), your worker is free either to spray other units or do other work.

You'll get these additional advantages, too, with Magnusol: No costly equipment needed; no heating costs; no obnoxious odors; no harmful, annoying clouds of steam-chemical vapors; no attack on paint; safety to workers; cleaner jobs than ever before.

The Magnus Truck and Bus Cleaning Manual describes the many uses of Magnusol and all the other specialized Magnus Products for all your cleaning jobs. Write for your free copy.

MAGNUS CHEMICAL CO. • 38 South Ave., Garwood, N. J.  
In Canada—Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que. Service representatives in principal cities.

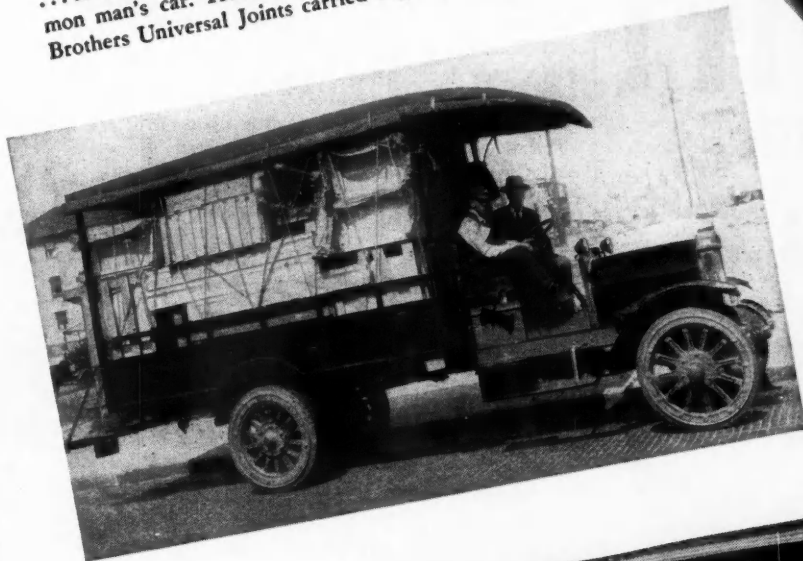


# MAGNUS

CLEANERS • EQUIPMENT • METHODS

*turn back the pages!*

... to the "teens" of this century, when the Model T was the common man's car. Trucks rolled on hard tires then... and Blood Brothers Universal Joints carried engine power through...

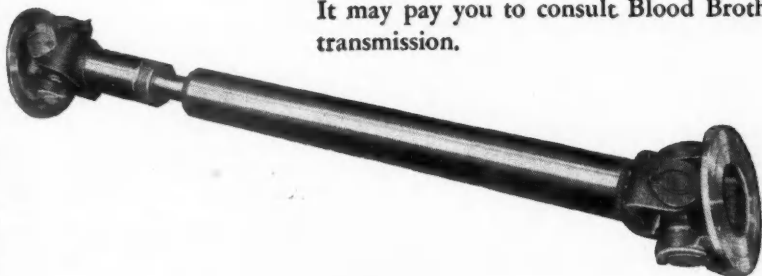


## **. . . and today, for the roughest, toughest jobs, you can depend on BLOOD BROTHERS Drive Line Assemblies**

Since "way back when", Blood Brothers Universal Joint Assemblies have been noted for toughness, precision and dependability. And today, when engines deliver up to ten times greater torque — and drive shafts turn twice as fast — Blood Brothers Drive Line Assemblies continue to meet every test.

Over the roughest terrain, they take grueling pulls, sharp speed changes and shock loads — and get the power through dependably.

It may pay you to consult Blood Brothers on your problems of flexible power transmission.



This high-speed drive line is typical of the many Blood Brothers Universal Joint Assemblies giving dependable service on today's fast, powerful trucks.

**BLOOD BROTHERS machine co. ALLEGAN, MICHIGAN**

A Division of Standard Steel Spring Co. Chicago Office: 122 S. Michigan

# CHAMP-ITEMS HAS IT!



**MORE THAN 200 AUTOMOTIVE PARTS TO HELP YOU DO A BETTER SERVICE JOB . . . . .**

The Champ-Items catalog is a "service handbook" that should be in every shop. If you haven't a copy, write us on your letterhead for a free copy, today.

ORDER FROM



YOUR JOBBER

**CHAMP-ITEMS, INC.**

6191 Maple Ave. St. Louis 14, Mo.

## CCJ Reports . . .

Continued from Page 188

### Government Cuts Red Tape

Rep-tape cutters have a new device called the "purchase order-invoice-voucher which will be used for small purchases from Federal Government agencies. The system involves only four carbon copies—sales-pad variety which administrators say will expedite payment and give opportunity for small business men to deal with the Federal Government who would normally shy from the elaborate invoice system in general use.

### Warehouseman Honored

Arthur Brandt, manager of the Flint, Mich., terminal of the Geo. F. Alger Co., was honored for an outstanding record in prevention of claims against the motor-carrier concern. The Flint terminal has not had a single claim for "over, short, or damaged" cargo in two years, and during the two-year period, the terminal has handled more than 25,000 shipments.

### Turnpike Accident Study

The possibility that a fairly large percentage of accidents on the Pennsylvania Turnpike are caused by hypnosis of drivers, is receiving consideration by highway safety officials and police. Plans now under consideration call for medical men and psychologists to make a study using fleet truck drivers as guinea pigs and the Turnpike as a testing ground.

### NPA Rules Released

The NPA has just released a formal set of rules governing consultation with industry representatives on the defense production program. These rules formalize the practices which NPA has been following since its establishment. They are designed to assure to NPA the benefits of representative industry opinion in developing increased production, and to guide the participants in industry advisory committee activities in adhering to the provisions of the anti-trust laws.

### Safety Called Defense Measure

Calling for increased activity in the fields of automotive maintenance and highway safety, G. D. Sontheimer, director of Safety for the American Trucking Association, Washington, D. C., declared the present national defense effort will "require of highway transportation the most efficient operation it is within our power to give."

Mr. Sontheimer told a luncheon meeting sponsored by the Safety Committee of the Kentucky Motor Transport Association that safe and rapid transportation of defense materials from the plant to the point of use "is just as important as high production.

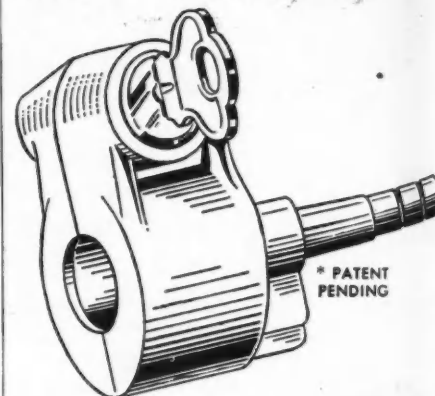
(TURN TO PAGE 228, PLEASE)

## Handcuff The Mileage Moocher Today!



**...And Enjoy the Extra Profits that Kontra's Mile Lock will bring you with Honest Speedometer Reading.**

Yes sir, Mr. Fleet Owner! Kontra's Mile Lock keeps those extra miles down to a minimum. And you, Mr. Taxi Owner—is your meter ringing up all those fares?



Kontra's Mile Lock is a small, all-metal lock (one for each end of the speedometer cable) preventing disconnecting or tampering in any other way with the cable. It locks on in a jiffy with a master key. Easily installed on any vehicle and just as easily removed with the master key.

Kontra's Mile Lock assures accurate mileage

Write for further information, Dept. C-2



**327 Seventh Street Oshkosh, Wisconsin**

*Rely on the*

# **DELCO LINE**

*for*

**protecting equipment**

**maintaining schedules**

**availability of units and parts**

**ease of replacement**



**SHOCK ABSORBERS**  
for ALL cars,  
trucks and buses

There are no shock absorbers like *hydraulics* . . . no hydraulics like *Delcos*. That explains why more cars, trucks and buses are equipped with Delcos than with shock absorbers of any other make. It explains, too, why you can *rely on the Delco line* to help minimize operating and maintenance costs. The widespread United Motors organization makes Delco replacement units and parts readily available.

## **DELCO PRODUCTS**

Division of General Motors Corporation, Dayton, Ohio



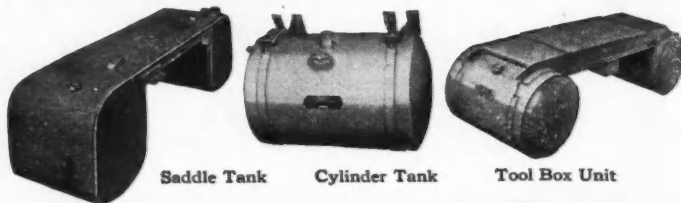
**DELCO SHOCK ABSORBERS—**  
**A UNITED MOTORS LINE**  
Available Everywhere Through  
**UNITED MOTORS DISTRIBUTORS**



## Snyder SAFETY TANKS HAVE FLEET OWNER ACCEPTANCE . . .

because all Snyder Safety Tanks are designed to stand up under the jolts of heavy loads, high speeds and the shock of the road.

Snyder Tanks embody the famous "Flame Guard" Safety Valve and the new Snyder Fusible Fill Cap.



### SNYDER TANK CORPORATION

For catalog and address of your nearest dealer, write:

P. O. Box 14, Buffalo 5, New York

P. O. Box 2390, Birmingham 1, Ala.

*Time Savers...*  
**KEN TIRE CHANGING TOOLS**  
*...they're "Job Designed"*

KEN-TOOLS are hand forged from chrome nickel alloy steel...heat treated for extra long life...Best By Actual Test!

**KEN-TOOL... LARGEST EXCLUSIVE MAKERS OF TIRE AND WHEEL CHANGING TOOLS**

See Your Local Jobber for Our Complete Line  
**The KEN-TOOL Mfg. Co.**  
Akron 5, Ohio

## CCJ Reports . . .

Continued from Page 226

### Freight Volume Shows Decrease

The volume of freight transported by motor carriers in November, 1950, decreased 9.4 per cent below October, 1950, but increased 23.3 per cent over November, 1949, according to statistics compiled by the American Trucking Associations' Research Department.

Comparable reports received by ATA from 298 carriers in 42 states showed these carriers transported an aggregate of 4,039,433 tons in November, as against 4,458,319 tons in October and 3,277,084 tons in November, 1949.

Approximately 80 per cent of all tonnage transported in the month was hauled by carriers of general freight. The volume in this category decreased 8.8 per cent below October but increased 21.9 per cent over November, 1949.

### Rubber to be Man-Made

Plants recently reactivated for the manufacture of man-made rubber will supply 60 per cent of all rubber used in the United States by March of next year, Dr. Waldo L. Semon, Director of Pioneering Research for the B. F. Goodrich Company, Akron, Ohio, told students of Trinity College, Hartford, Conn.

Technical teams furnished by private industry already have rushed nine standby government plants into operation, he said, while three others will be soon reopened.

(TURN TO PAGE 230, PLEASE)

**CAMPBELL**  
*Lug-Reinforced*  
**TIRE CHAINS**  
THE CHAIN WITH THE SAW-TOOTH GRIP  
**CAMPBELL CHAIN Company**  
Factories—York, Pa. and West Burlington, Iowa  
Main Office—York, Pennsylvania

**CRESCENT**  
*Wiry Joe*  
**AUTOMOTIVE CABLE**  
Manufactured by  
THE CRESCENT COMPANY, Inc.  
Pottsville, Rhode Island

**CHECK THE WIRE ON EVERY JOB**

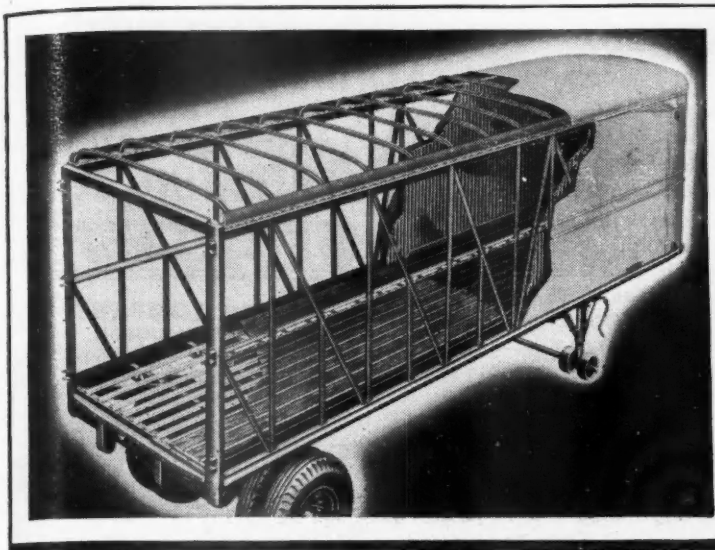
**OVER 70% OF ALL MAKES OF TRUCKS AND BUSES ARE ZOLLNER EQUIPPED**  
**ZOLLNER**  
HEAVY DUTY PISTONS  
ZOLLNER MACHINE WORKS FORT MYERS, IND.

**FOR LOCK MAINTENANCE LOCK-EASE® Graphited**  
LOCK FLUID  
Protects Against  
• STICKING  
• RUST  
• FREEZING  
**AMERICAN GREASE STICK CO.**  
Muskegon, Mich.

*Permalux*  
FINER DECALCOMANIA  
FIRST IN { APPEARANCE ECONOMY DURABILITY  
**Made With DuPont "DULUX"**  
Write Today for details  
**THE PERMALUX COMPANY**  
500 Rathbone Ave. • Aurora, Ill.

**KINNEAR Rolling Doors**

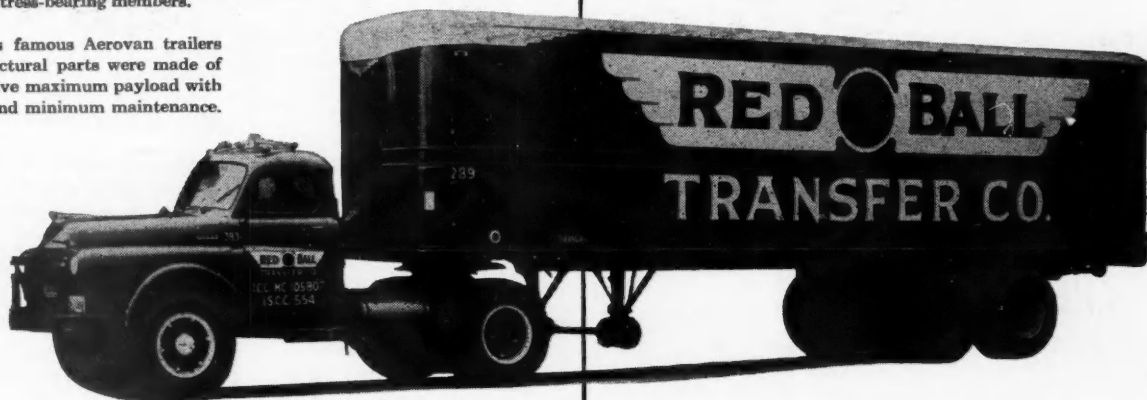
For Trucks or Buildings. Kinnear Rolling Doors open straight up... coil out of the way overhead... save floor and wall space... open and close freely in tightest quarters. All-metal curtain gives rugged protection. Motor or manual control. Any size. Write  
**The KINNEAR Manufacturing Co.**  
2100-20 Fields Ave. Columbus 16, Ohio



Cut-away section of a Fruehauf Trailer showing Cor-Ten Steel stress-bearing members.

One of Fruehauf's famous Aerovan trailers in which vital structural parts were made of Cor-Ten Steel to give maximum payload with minimum weight and minimum maintenance.

## FRUEHAUF USES U·S·S COR-TEN STEEL



**...to build lighter, stronger trailers**

In today's keenly competitive freight-hauling industry, your operating and maintenance costs can often spell the difference between a profitable business and a losing one.

That's one reason why many of the Fruehauf Trailer Company's famous Aerovan Trailers are built with a strong, resilient, weight-reducing integral frame made of U·S·S COR-TEN STEEL.

A recent report from Fruehauf said . . .

*"We have found that since we have been using U·S·S Cor-Ten we have been able not only to cut our production costs by using lighter gages than*

*mild steel would require, but have also given our customers what we feel is a stronger and lighter trailer."*

Stronger, COR-TEN-built units require less maintenance. Long periods of usage under severe conditions have proved this. That's because COR-TEN has one and a half times the strength of plain steel . . . has 4 to 6 times greater resistance to atmospheric corrosion . . . in addition has 60% greater fatigue strength. Those superior properties give U·S·S COR-TEN equipment greater ability to withstand road shock and vibration stresses and to absorb the wear and tear of heavy-duty service.

Lighter units mean greater payload, lower operating costs. Less dead-weight means lower costs for power, less wear on brakes, less wear on tires—and lower license fees.

Truck and trailer manufacturers have found that U·S·S COR-TEN Steel is easy to work with. It does not retard production or increase fabricating costs.

Our engineers have had 15 years of experience in applying U·S·S COR-TEN to commercial vehicles. Find out how it can be applied most economically to your designs. A letter or a phone call to our nearest office will bring you all the facts.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND • COLUMBIA STEEL COMPANY, SAN FRANCISCO  
NATIONAL TUBE COMPANY, PITTSBURGH • TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM • UNITED STATES STEEL COMPANY, PITTSBURGH  
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



## U·S·S HIGH STRENGTH STEELS

U·S·S COR-TEN • U·S·S MAN-TEN • U·S·S TRI-TEN

0-1682

UNITED STATES STEEL

For better traction

Use **CLAW**

**Double-Duty  
TRUCK CHAINS**

**Columbus McKinnon Chain  
Corporation  
TONAWANDA, N. Y.**

ANOTHER PUROLATOR FIRST!



The  
**PUROLATOR**  
Micronic OIL FILTER

with the NEW  
**DIRT CHECK  
WINDOWS**

SAVES TIME . . . CUTS OPERATING COSTS


20 — 1949 — 1/2 Ton

**CHEVROLET TRUCKS**

Side Aisle Delivery, equipped  
with Cabinet — Governor —  
Oil Filter — Spare Tire  
Low Mileage  
Excellent condition

**LANG'S**

400 Best Street Buffalo 8, N. Y.



**SHOCK LINKS**  
**WATER PUMPS**  
**OIL PUMPS**

for  
**FORD  
CHEVROLET  
PLYMOUTH**

**Wohlert**  
CORPORATION  
LANSING 5, MICHIGAN

AND HUNDREDS OF OTHER PARTS

Better—but not  
more expensive!

**SHULER  
AXLES**

**SHULER AXLE CO.**  
LOUISVILLE, KY.

## CCJ Reports . . .

Continued from Page 228

### Technical Data Clearing House

A service of the Department of Commerce has been established to help the public guard voluntarily against the release of technological information which would endanger the national security. The establishment of this service followed a study and recommendations made by the Interdepartmental Committee on Internal Security, a committee of the National Security Council.

This service, to be operated through the Department's Office of Technical Services (OTS), will provide a central place to which state and local officials, representatives of private businesses, other organizations and private citizens may write for guidance as to whether specific technological information which is not subject to formal security regulations should be released, withheld, or given only limited distribution. Whether or not they follow this guidance is up to them. For further information write to the Office of Technical Services U. S. Department of Commerce, Washington 25, D. C.

### Buck Reprints Available

In view of many requests, reprints of the Donald Buck article, "Attitude . . . Key to Accidents" which appeared on page 51 of the January issue, have been made available at nominal cost. For details write the Editor stating quantity desired.

### NEW FORMS

*For Fleet Maintenance*

- TIRE CHANGE
- TIRE RECORD
- WALL CHART
- TIME CARDS
- TROUBLE REPORT
- DAILY REPORT

*Write for Samples*

**Fleet Forms** P.O. Box 793  
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for **EXTRA  
PROFITS  
and EXTRA  
GOODWILL...**

install **RAMCO**  
**PISTON STABILIZERS**  
on every Re-Ring Job!

5115  
RAMSEY CORP., ST. LOUIS, MISSOURI

**HEAVY DUTY  
MOTOR TRUCKS**

**GASOLINE ELECTRIC  
GENERATING SETS**

**DUPLEX**

**TRUCK COMPANY**  
LANSING, MICHIGAN



**SNAP-ON TOOLS CORPORATION**  
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METALLIC ALUMINUM-  
FUSED-OXIDE  
STEEL ASBESTOS

**GASKETS\***

**STAND THE GAFF IN  
HIGH COMPRESSION ENGINES.**  
The Fitzgerald Manufacturing Co.  
Torrington, Connecticut

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The fastest growing idea in the  
auto repair business today!

**HYGRADE**

*Fingertip System*

of CARBURETOR REBUILDING

HYGRADE  
LONG ISLAND CITY 1, N. Y.

Standardize on  
**LIPE Clutches**

- for more miles between tear-downs!
- for less wear and tear on the truck!
- for easier maintenance and replacement!
- used by America's leading heavy-duty truck manufacturers!



*Life - ROLLWAY CORPORATION*  
SYRACUSE 1, N. Y.

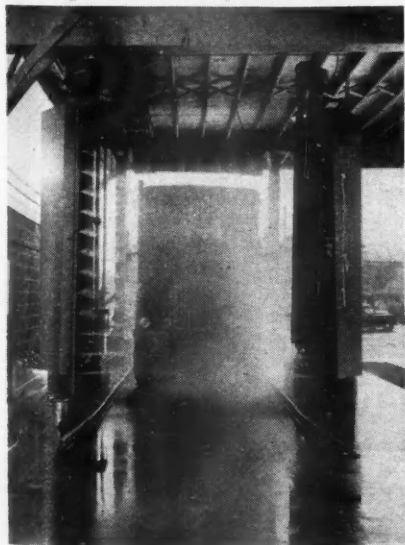
# *Washing is Fast ...*

## **with this Time and Labor Saving Equipment**



### **REQUIRES LITTLE SPACE**

*Engineered to your needs*



You can depend on a Whiting for fast washing—when you need it. With the Whiting\* Washer, you can wash your fleet on a regular schedule, maintain a good public appearance—reduce lay-up time, and save money. The Rugged Whiting\* Washer will pay real dividends in economy of operation. Send the coupon for more information.

\*Reg U. S. Pat. Off.

# **WHITING**

## **WASHERS**

### **FOR BUSES & TRUCKS**

Photos courtesy Consolidated Freightways, Inc.

### **Send the Coupon for Complete Details**

Whiting Corporation  
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Harvey, Illinois

Please send information on  
Whiting Washers.

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Address

City

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● The MORRISON *Carry-All* is carried in stock for immediate delivery to franchised chassis dealers by 60 established truck equipment distributors from coast to coast.

**Carry-All Body Division**

**MORRISON STEEL PRODUCTS, Inc.**

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- ✓ HUSKY, WIDE and HANDSOME
- ✓ POSITIVE PROTECTION AGAINST WEATHER and THEFT
- ✓ A DESIGN FOR EVERY MECHANICAL, TIRE, SERVICE or GENERAL USE
- ✓ LOWER INITIAL COST . . . NO MAINTENANCE COST

**EASY—QUICK WASH  
CUTS MAINTENANCE COSTS**

*Attaches to Hose*

**'LACO' FOUNTAIN  
BRUSHES**

**SOAKS  
SCRUBS  
RINSES**

**In One Motion**



For TRUCKS, TRAILERS,  
R.R. COACHES, AUTOS, AIR-  
PLANES, BUSES, TROLLEYS



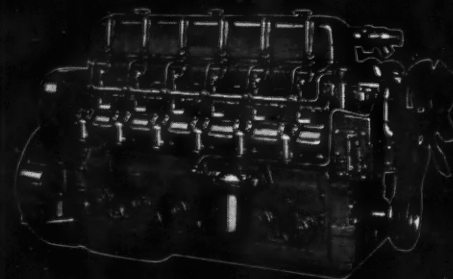
Handy valve  
on handle  
for  
finger-tip  
control

**HEAVY DUTY LINE**  
¾" hose connection  
Push type water  
control valve  
Tampico—horse  
hair—mixed nylon  
or mixed bristle  
Replaceable brushes  
Heavy duty—light-  
weight aluminum  
Prices start  
@ \$12.00 list  
**UTILITY LINE**  
Molded aluminum  
fountain brushes  
for light work  
\$7.75 list  
*Ask jobber—write us*

**LAITNER BRUSH CO.**  
2000 BROOKLYN  
DETROIT 26, MICHIGAN



**2 - CYCLE**



P&H Diesel Engines are of greatly simplified design — with a speed and ease of servicing that makes important savings in time and costs. P&H patented cylinder head and liner assemblies, replaceable in only 40 minutes, are interchangeable among all models. P&H Diesels offer greater horsepower per pound. Write for literature.

**P&H**

**DIESEL DIVISION**

**HARNISCHFEGER**

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# ...PRODUCE HAULING

*is more Profitable*

WITH A

**DORSEY**

*Fleet Chief*

PRODUCE VAN

*The Completely Packaged Unit*



## NEW AIR-FLO FLOOR

Provides adequate air circulation, eliminates duct boards and floor weight.

## STEP-SEALED DOORS

Doors of Fleet Chief Produce Vans have refrigerator-type step-sealed construction, giving a positive rubber seal that prevents heat transfer or refrigeration loss.



Not only produce haulers, but many freight operators are finding the DORSEY FLEET CHIEF Produce Van the key to profitable operation. This complete packaged unit with sturdy Air-Flo floor, sacrifices only 24 inches of its nominal length for an 1800 lb. ice bunker with 15 inch blower driven by 5 H.P. engine.

The Dorsey Fleet Chief Produce Van offers more value for less money . . . more strength for less weight!

Here are the Advantages that give you

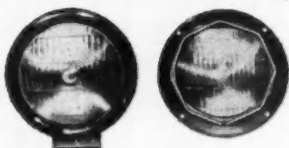
## ADDED PROFITS

- New Air-Flo Floor
- Ultralite insulation . . . plus aluminum foil
- Rust-proofed structure
- Big roof hatches and ventilators
- Doors and ventilators step-sealed
- 5 H.P. blower engine
- New maintenance-free tandem
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**DORSEY TRAILERS**

**ELBA, ALABAMA**

## NEW! SAFER! SPARTON Flashing Directional Signals



**Rim Type Rimless Flush Type**  
900 Series, Class A. For vehicles over 80 inches wide. Approved in California and other states requiring approval.



MODEL AC-1

### ARMORED CLEARANCE LAMP

Fresnel lens. Rubber-gasket-cushioned, bond-erized. Body edge holes (patent pending) provide truck body illumination pattern. Heavy-gauge, stamped-steel body.

**Exceed S.A.E. Specifications.  
Daylight Visibility—1500 to 1800 feet.**

For safer, faster trips—Sparton Series 900 flashing directional signals, much more effective than arrow-type turning signals. Available for flush or body mounting. Rustproof, dustproof, shakeproof. Amber and red lens. Complete sets—no extras needed for installation. Check them and other Sparton safety equipment for your fleet today. At all good suppliers!

### COMING SOON!

**New Sparton Self-Cancelling  
Directional Signal Switch**

*Sparton*  
**AUTOMOTIVE**

Division of  
THE SPARKS-WITHINGTON COMPANY JACKSON, MICHIGAN

**ONE COMPLETE LINE...ONE RELIABLE SOURCE!**  
MAKERS OF QUALITY SAFETY SIGNALS SINCE 1900

## WHY BUY

a Destructible Oil Filter  
When You Can Buy a  
**W.G.B.**  
OIL CLAR-O-FIER?

Made of  $\frac{1}{8}$ " pressed steel, with a forged bar and screw—the lifetime W. G. B. Oil Clar-O-Fier is practically indestructible.

Remember, too, the exclusive . . . patented oil distributing support that makes the W. G. B. Replacement Cartridge more efficient . . . more economical. W. G. B. Cartridges provide the maximum in filtering area—combined with absorption—and can be changed without tools. Write for catalog and name of distributor located nearest you.



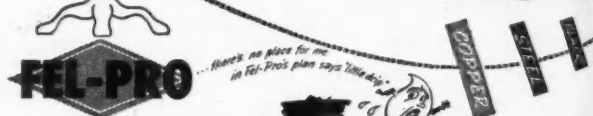
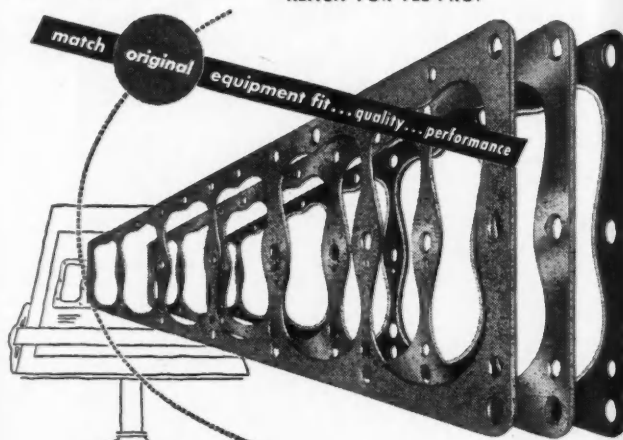
**W.G.B. OIL CLARIFIER, INC.**  
KINGSTON, N. Y.

## FEL-PRO's always ONE STEP AHEAD

to help solve your problem of Gasket Supply

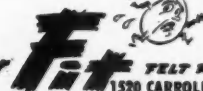
What would happen to Fel-Pro users in the event of critical shortages of strategic materials? NOTHING! Fel-Pro's already a step ahead of that possibility! Fel-Pro Engineers have developed and thoroughly proven by rigorous laboratory tests conducted over many months, gaskets which will serve you during any possible emergency. These gaskets will carry the same guarantee as do Fel-Pro Gaskets you are now using. In any event, you can be sure that the Fel-Pro Gaskets you use today, or the Fel-Pro Gaskets you use tomorrow, are made by creative engineers who know what modern high speed engines require in raw materials and in precision construction. You can always be sure when you . . .

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## COMMERCIAL CAR JOURNAL

THE  
AUTHORITY  
ON  
TRUCK-FLEET  
OPERATION  
AND  
MAINTENANCE



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Save shop time . . . money . . . labor. Remove any truck tire—big or "frozen." Handles flat base, advanced, and semi-drop center rims. Mounted on Service Board. Weighs only 22 lbs. Easily carried in service truck. Ask for Catalog No. 860C.



No. 880

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MANUFACTURING  
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BRULIN'S LIQUID

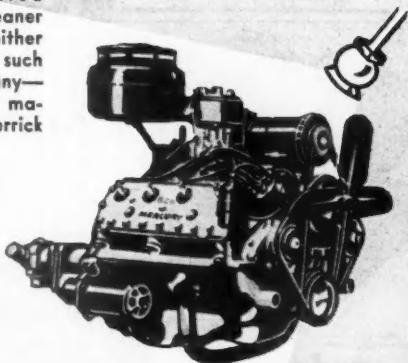
## Steam Cleaner

FOR TOP FLEET MAINTENANCE

NON-INFLAMMABLE • NOT CORROSIVE  
NOT CAUSTIC • NOT TOXIC • NOT ACID

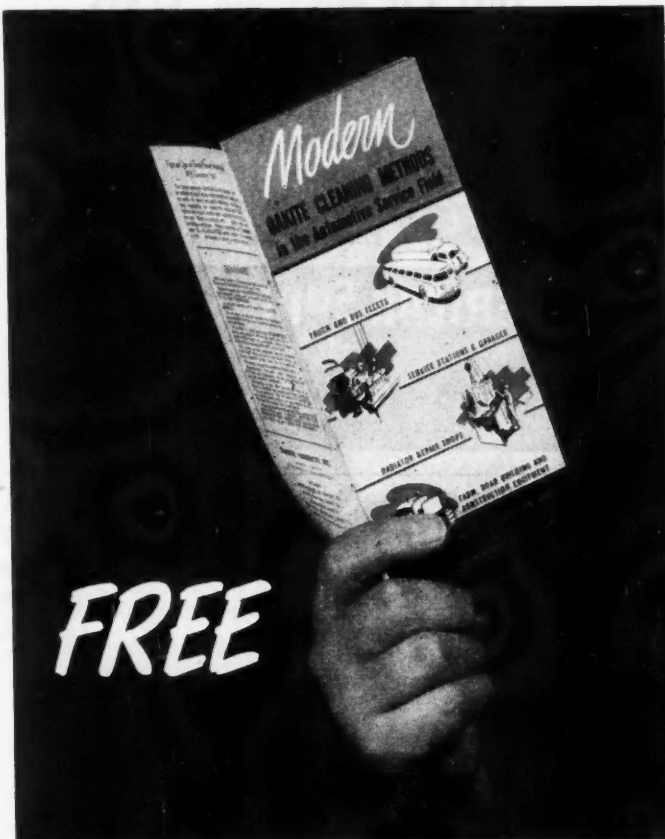
A Liquid Steam Cleaner in CONCENTRATED Form

Brulin's concentrated liquid Steam Cleaner may be used in either portable machines such as the Drill or Jenny—or in a stationary machine like the Kerrick Hydro Steam Kleaner. Brulin's liquid Steam Cleaner is safe, economical and effective. Write for complete information.



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## To Help You Expedite Maintenance and Overhaul

**H**OT out of the service shop comes this valuable collection of money-saving cleaning procedures. Here you'll find modern Oakite methods for

- CARBURETOR, fuel pump, parts cleaning
- COOLING SYSTEM descaling
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- BODY-WASHING; interior cleaning
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TRADE MARK REG. U. S. PAT. OFF.

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

## OUT GO RUST and SCALE

From ALL Radiator Cooling Systems  
DOWN GO MAINTENANCE COSTS  
Time, Trouble and Over-Heating

WHEN IN GOES  
SAND-BANUM SPECIAL

Pure Concentrated Colloidal Tablets

Safe - Certain - Economical. Ask For Proof.

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Established 1926

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**DON'T LET  
WASHERS TIE  
UP YOUR JOB!**

Every work bench should have the right variety of washers. The Whitehead assortment has all S.A.E. standard sizes. Reasonably priced.



ORDER THROUGH YOUR JOBBER

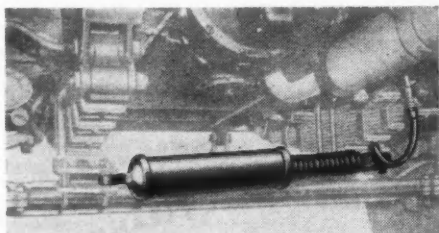
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TO CHECK SPEEDS PERIODICALLY  
TO SHOW SPEEDS CONTINUOUSLY  
USE JONES TACHOMETERS

write for Catalog **146-B**

**JONES MOTROLA CORP.**  
STAMFORD • CONN.



← This view shows the installation of the Air - O - Matic Power Steer Booster on a Thew Lorain Moto Crane

### EASIER AND SAFER TRUCK DRIVING

A compact, self-contained booster of simple construction, operated entirely by air. Works automatically, helping only as the operator of the vehicle leads the steering wheel in either direction. Reduces pull—gives better control—lessens strain on driver.

Details and technical information available on request. Write or wire for descriptive matter NOW!

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## FAST FILLS - NO SPILLS

STOP Blowback, Overfilling  
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FILL SIGNAL



"JUST FILL 'TIL THE WHISTLE STOPS"

In 1950, over 1,000,000 cars and trucks will be Factory equipped with VENTALARM Signal.



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Type G-BB—Booster  
Brake Hose Connections  
No. G-B-HM for  
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Type HP—High  
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Type A—Radiator  
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**WITTEK  
NOC-OUT HOSE CLAMPS**

The standard of the Automotive Industry for leak-proof hose connections

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go anywhere . . . .  
stick to their job!

PF decals sell your brand name...in cost-free space ...to thousands every day! Tailormade to suit your purpose, PF decals are made in any size, color or design. Write today for free booklet and samples.



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Do a  
**COMPLETE JOB**  
with

make more  
money, too!

**RENU**  
*Accurate*  
**CLUTCH SETS**

**A few turns will do it!...**



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**Thread RESTORERS**

Just slip on, tighten and turn. That's all there is to it—it's that simple... and quick... And what results!

Flats and nicks are eliminated—even heavily rusted and corroded threads are cleaned pronto. No more drilling or hack sawing to restore damaged male threads—when you have a Buckingham Thread Cleaner handy.

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*Federated gardiner*  
**SOLDER** BRAND

Make your work easier with Federated Gardiner brand Acid Core Solder. It melts fast... evenly... produces a tight bond.

Look for it in the familiar blue package wound on metal spools. Comes in all sizes and compositions... analysis on the package. Listed by Underwriters' Laboratories, Inc.

*Federated Metals*  
*Division*

AMERICAN SMELTING AND REFINING COMPANY  
WHITING, INDIANA (CHICAGO)



**RENT your extra TRUCKS**  
**FROM HERTZ... world's largest**

*Any hour day or night!*



You'll find it's good business to rent your "extra" trucks from Hertz, for an hour, day, week or as long as you need them. Thousands of businesses thus depend on Hertz in emergencies, and peak periods, and no wonder, for think of the savings over the cost of keeping extra trucks that are so often idle! Hertz furnishes everything but the driver, gives you fine trucks properly insured, and you pay only for actual time and mileage, no extra charges. Learn the full story. Get the complete details without obligation.

**CALL YOUR LOCAL HERTZ STATION, LISTED UNDER "H" IN THE TELEPHONE DIRECTORY.**

**HERTZ Drive-Ur-Self SYSTEM**

National Headquarters

(Dept. 321, 218 S. Wabash Ave., Chicago 4, Illinois)

## GET RID OF GAS FUMES

**Solve This Serious Problem With a "National" Approved Underfloor System**

For the garage owner planning a new building or extensive remodeling, "National" has designed and engineered 3 systems for effective removal of poisonous carbon monoxide gas and smoke. "National" underfloor systems are completely fabricated at factory and shipped in packaged kit—nothing else to buy. Proven adequate and dependable, "National" has thousands of installations in every part of the U. S. Send a rough drawing of your service area, showing stall positions. We will gladly supply you with plans to suit your needs. Literature on request.

Standard kit, 2 floor inlets serving any 2 of 4 cars in a row.

**\$319.50**

F.o.b. Decatur. Complete packaged unit, including motor and blower—underfloor duct work (for encasing in poured concrete). Additional car service extension, \$45 each. Note in illustration that tube disappears without entering main trunk line—for balanced flow of air through main duct and perfect exhaust gas removal.



"National" also makes complete package kits for Overhead installations, starting at \$187.50. Flexible metal hose, motor and blower units, rustproof, cast aluminum floor assemblies and accessories available. Write for complete catalog.

**Architects and Builders please refer to Sweet's Catalog.**

**THE NATIONAL SYSTEM OF GARAGE VENTILATION**

World's Largest Manufacturer of Exclusive Garage Ventilating Equipment  
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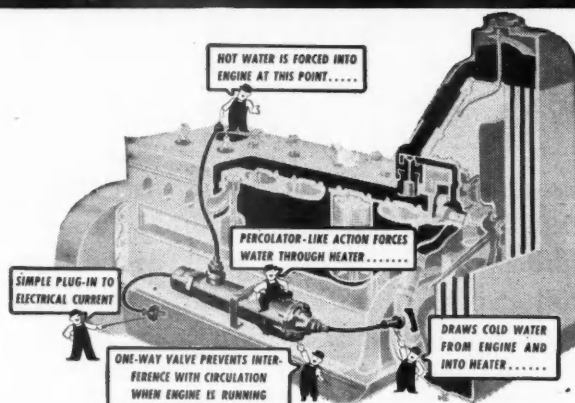
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Jack Rabbit Starts in Winter ... with



Hotstart

electric pre-heater for Gas and Diesel Engines



## 8 Outstanding Features

- ✓ Gives quick, easy starts
- ✓ Reduces motor wear
- ✓ Prolongs battery life
- ✓ Four models—quickly installed
- ✓ Reduces fuel consumption
- ✓ Saves warm-up time
- ✓ Cuts costs of terminal heating
- ✓ For stationary or mobile engines—diesel or gas



Fast action now means dollars saved in your winter operating budget. KIM Hotstart installations lick winter grief; end sluggish motors, end service tie-ups and high repair bills. KIM pre-heater means quick starts, efficient engine operation, lower cold weather operating costs all the way around.

See your International or Mack dealer or any leading auto supplier. Or write for literature. Better do it now. Cold weather doesn't wait for anybody!

KIM HOTSTART MFG. CO.

West 917 Broadway, Spokane 11, Wn.

Please send literature, prices, name of local KIM dealer.

Name.....

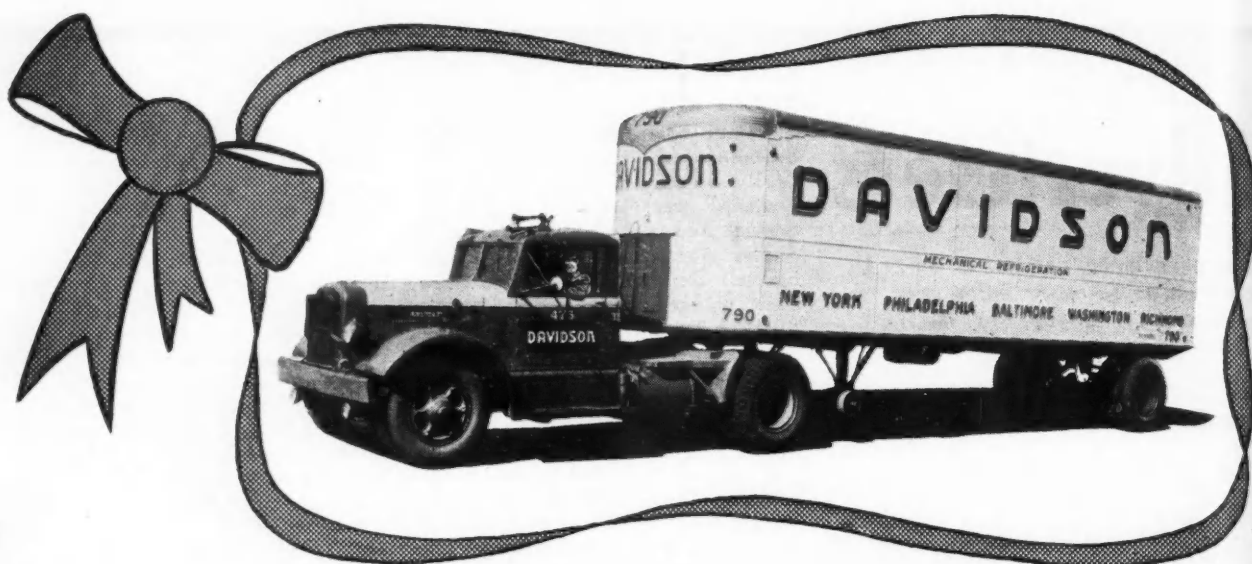
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*The SCANDINAVIA-equipped*  
**DAVIDSON FLEET**  
*wins National Safety Council Group 1 First Award*



We feel a little like one of the seconds working in the Champ's corner. A second who made a notable contribution to the fine record scored by the Davidson Transfer & Storage Co. in winning top honors in the 1950 Group 1 Highway Safety Contest sponsored by the National Safety Council.

Traveling 396,058 miles per responsible accident—a distance equal to circling the world 16 times at the equator—was no casual occurrence. It took round-the-clock planning and supervision to achieve this record.

Similarly, the selection of SCANDINAVIA ZT Heavy Duty brake blocks was no offhand decision. SCANDINAVIA ZT—famous for safely stopping anything on wheels—was chosen on the basis of trouble-free performance, low cost-per-dollar mileage and dependable braking for any emergency likely to be encountered on the road.

We congratulate you, Messrs. Davidson—and we toss a bunch of posies to your co-workers, too. We want you to know that SCANDINAVIA is proud to be identified with your magnificent record, which reflects the remarkable character of your day-in-day-out operation.

## **SCANDINAVIA BELTING COMPANY**

Head Office: 250 CENTRAL AVENUE, NEWARK, N. J. Plant: CHARLOTTE, N. C.

Complete Stocks at:

Boston, Mass.

Cleveland, O.

# **BUY Willard**



**For Quick Starts • Long Life**

**Low cost per mile on every battery job**



**TRG and TWG Types for Heavy Trucks and Tractors.** For 6-volt starting, lighting and ignition on heavy Diesel or gasoline powered trucks and tractors. Sturdy, hard rubber containers. Exclusive Willard "Safety-Fill" construction to prevent over-filling. TWG types with selected wood separators and glass fibre retaining mats for normal service. TRG types with Willard Rubber Insulation and glass fibre retaining mats for cycling service and for vehicles in severe, high mileage service.



**BRG and BWG Types for Buses and Motor Coaches.** For 12-volt starting, lighting and ignition on Diesel and gasoline powered motor coaches and buses. Strong, hard rubber containers. Exclusive Willard "Safety-Fill" construction to prevent over-filling. BWG types with selected wood separators and glass fibre retaining mats for normal service. BRG types with Willard Rubber Insulation and glass fibre retaining mats for cycling service and for vehicles in severe, high mileage service.

**CWG Types for Light Trucks.** For 6-volt starting, lighting and ignition on light to medium weight trucks and for passenger cars in commercial service. Dual insulated with selected wood separators and glass fibre retaining mats. Sturdy, hard rubber containers. Exclusive Willard "Safety-Fill" construction to prevent overfilling.



**WILLARD STORAGE BATTERY COMPANY**

Cleveland • Los Angeles • Dallas • Memphis • Portland • Toronto

# NOW THERE'S AN FWD for the largest segment of the Truck Field



**"In the utility field we expect trouble in bad weather — but bad weather doesn't slow up our LD's"**

Fast all-season performance on line maintenance and construction is a prime factor in choice of utility vehicles. The Light-Duty FWD more than meets this requirement.

**"Oil is where you find it — and those new LD's haul what we need wherever we must travel"**

For light transport — plus geophysical service — the LD offers the extra traction, longer life, and correct distribution of weight and power sought by oil men.

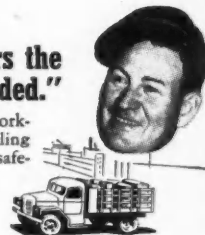


**"Nothing beats FWD traction for ice and snow control and year-round highway work"**

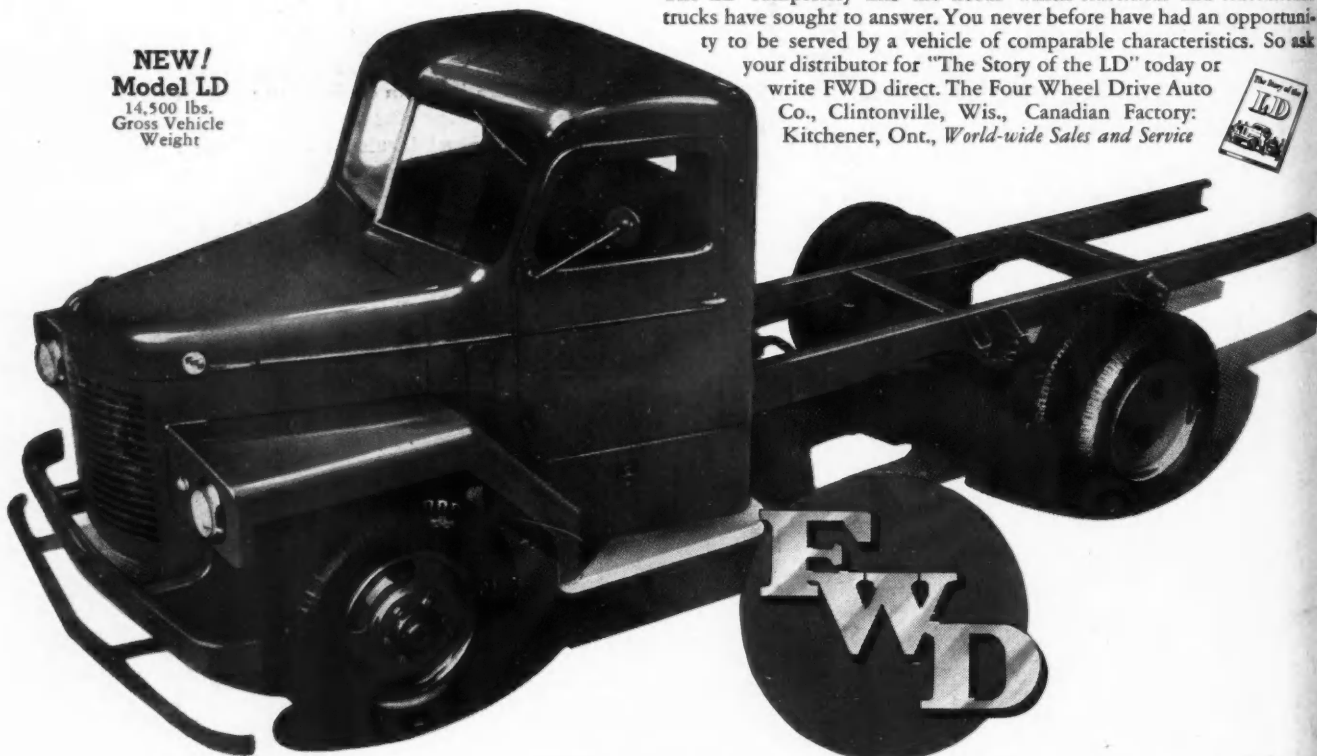
Equipment is readily mounted on the LD's front end. The LD has just the right height for easy shovelling into the rear.

**"... and my new LD delivers the load where and when it's needed."**

The LD serves an entirely new FWD work-range. It gives you more efficient hauling performance, economy and all-weather safety — on or off the highway.



**NEW!  
Model LD**  
14,500 lbs.  
Gross Vehicle  
Weight



The LD completely fills the needs which *conversions* and *conventional* trucks have sought to answer. You never before have had an opportunity to be served by a vehicle of comparable characteristics. So ask your distributor for "The Story of the LD" today or write FWD direct. The Four Wheel Drive Auto Co., Clintonville, Wis., Canadian Factory: Kitchener, Ont., *World-wide Sales and Service*



**Made by the Makers of America's Foremost Heavy-Duty Truck**

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tuni-  
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ruck